Industrial Finishing

An Independent Publication Devoted To The Finishing of Industrial Products

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Using a race-horse to pull a load of coal . . .

YOU wouldn't hitch Crusader to a coal wagon —nor would you enter a truck horse in the Latonia Derby—would you?

The same with finishes. A *good* finish is not enough. There are many *good* finishes. But the important thing is—is the finish scientifically adapted to the job?

The du Pont Industrial Finishing Service has performed a notable service to industry in this matter. Trained finishing engineers, backed by the enormous research and experience of the du Pont laboratories, can scientifically adapt the proper finish—or the proper finishing system—to the particular job the finish has to do.

For details regarding the du Pont Industrial Finishing Service, and other information about the du Pont line, write to E. I. du Pont de Nemours & Co., Inc., Parlin, N. J., Chicago, Ill., San Francisco, Cal., Everett, Mass., or Flint Paint & Varnish Limited, Toronto, Canada.

PAINTS VARNISHES ENAMELS FILLERS STAINS DUCO

DU PONT

With the Editor

COMES now September, a month of real activity; vacations are over, young folks are entering school, the agricultural and industrial fairs, shows and exhibitions of various sorts are on and we enter upon that promised period of increased volume in business which so many of us have looked forward to for some months past. September is a month of opportunity.

Every reader of this journal, being naturally interested in finishes and finishing equipment should allow nothing to prevent his attending the largest fairs or industrial shows that are presented in his locality. Here will be shown many of the latest developments in lines that are of especial interest, and one is sure to obtain valuable information and see things which will suggest new ideas and possibilities.

What could be more stimulating to constructive thought than to witness and inspect the triumphs of mechanical, electrical and chemical engineering; to view the latest creations in attractive design and decorative art; to learn at first hand the influence of proper proportions in form and of suitable harmony in color; to observe by the actions and comments of others what the trend in public taste really is?

Every manufactured product, to be a success financially, must have a definite and specific sales appeal. It is interesting to learn what this sales appeal is, not only on a few but on many products. This knowledge has a broadening influence and it will be of value to you and to those with whom you are associated.

W. H. Rohr

Managing Editor

"Only two things are necessary to the highest form of success in a manufacturing business. One is the 'know how' and the other is the determination to make it as good as it can be made. I might call this the skill and the will. Not all good finishes are made by the Murphy Varnish Company, but all finishes made by the Murphy Varnish Company are good."

FIVE *new* MURPHY FINISHES
you ought to know about

Just as for more than sixty years Murphy Varnishes have established and maintained an enviable reputation for quality, so are our newer pyroxylin finishes building similar reputations of their own. Here they are:

MURPHY KAURIOL WOOD PREPARATION is a combination filler, stain and waterproofing material which saves several finishing operations, and forms a perfect base for finishing coats of lacquer, shellac or wax. Sixteen standard colors.

MURPHY FLAT SPRAYING LACQUER is a finishing coat used to reproduce a satin-like rubbed effect without the usual rubbing operation. It will not wear glossy.

MURPHY BRUSHING LACQUER, clear or colored, is a lacquer which really may be applied successfully with a brush.

MURPHY BRUSHING LACQUER WHITE UNDERCOATING is a heavily pigmented, quick drying undercoat for white, ivory, or gray.

MURPHY CLEAR SPRAYING LACQUER has all of the remarkable qualities of lacquer and may be rubbed and polished to give a varnish effect.

Let us send a demonstrator to work out with you how these new finishes can save you money in your finishing plant.

Murphy
QUICK DRYING Finishes

MURPHY VARNISH COMPANY
NEWARK · CHICAGO · SAN FRANCISCO · MONTREAL

Business management here, offers opportunities for substantial economies

Buying, Checking, Storing and Requisitioning Finish Materials

These suggestions apply to the smallest as well as the largest manufacturers that are obliged to purchase and store finishing materials for future needs

By E. F. Werner

ONE of the problems confronting every manufacturer of articles that are painted or finished, is the intelligent buying, storing, checking and requisitioning of materials for the finishing room. There are fundamentals to be followed regardless of whether the plant is a large one with a special purchasing department, or a small one, employing a few men and with the buying being done by the employer or foreman.

The first step to be considered is the source of supply. There are a large number of reliable concerns represented in various sections of the country by practical men who have served many years in the finishing room, and who, by their plant experience plus information gained from the technical departments of their companies, are in a position to give valuable information to the man in the finishing room.

The Representative's Call

Every representative of a reliable company is entitled to a courteous interview by the individual who is designated to act as purchasing agent, no matter what his other duties or title may be. These men, traveling from city to city and from plant to plant, are bound to see and hear of operations, materials and procedures that the man in the plant cannot possibly see or hear of.

We know we cannot buy from everyone. We also know that all of the foreman finishers time cannot be spent in testing all the samples that are given to him. We do know, however, that usually all of us react favorably toward those who are civil and kind to us. The lacquer or varnish salesman is quick to recognize courteous treatment, and even quicker to give points of information that he has learned or heard about.

Judging Values

Another matter of importance is, "Are You a Price Man?" By that I mean, are you regulated in your purchases solely by the price of the material? Do you always want to know, "How cheap is it?" rather than, "Which is the cheaper in ultimate cost?" Some materials may be cheaper per gallon but they cannot be reduced nearly as much as others. Some materials take longer to dry, thereby tying up valuable space in the finishing room. Some will require more coats to build up the proper body, while others will cover less surface per gallon; still others will not permit proper rubbing, etc.

Decide on the material that will produce the least unit total cost, including the labor of applying it on the particular product you are producing. Stick to this product unless something turns up that is "better at the same price" or "just as good at a lower price." Occasionally some article is presented which appears to be worth trying out; then the proper tests should be made and a decision arrived at, depending upon the results obtained.

How Much to Order

The first step in the actual buying is deciding the quantity to be ordered, so the following questions must be considered:

1—How much will we need, per week, month or any definite period of time?

2—Is there a worth while saving in quantity purchases?

3—Will the interest on the money tied up in quantity purchases offset the visible saving per gallon?

4—How long does it take to get the material?

5—Available storage space for proper storing.

Information on Record

The minimum and maximum amounts to be carried on hand should be determined, and a suitable record made for convenient reference. There are a number of cards available from the company's manufacturing office record supplies. One of these stock record cards is shown in Fig. 1. A record should be kept of the source of supply as well as the unit cost, so that at any time an average cost may be shown for a definite period of time.

A definite record or memorandum should be kept so that a follow-up may be made at regular intervals to keep track of the order and prevent unnecessary delays.

In a small plant the bill of lading, dray ticket, invoice or whatever record of delivery there is, should be sent to the man who ordered the material, in order that the quantity, kind and price may be checked against the purchase order.

(NAME AND ADDRESS OF COMPANY)

Order No. 2010 Dept. No. Finishing Date 1/6/26
These Numbers Must Appear on Invoice and B-L

To Lacquer Co. Ship to Above

At At "

When Ship At once Via Universal Carloading Co.

Gentlemen: Please enter this order for shipment per the following:

Countersigned. Per Purchasing Department.

Quantity	Style No.	DESCRIPTION	Price
50 Cans		5 gal. each White Enamel Lacquer @	

IMPORTANT—Original and Duplicate Bills of Lading Must Accompany Invoice.
SHIP IN OUR NAME.
Address all Correspondence to Purchasing Department. Order Number Plainly Specified.

The purchase order, size 8½ by 11-in.

ARTICLE	LOCATION	UNIT	DATE	MAX.	MIN.
Lacquer Enamel (White)	Main Storage Room	5 Gal Can	1/4/26	50 Cans	15 Cans

ORDERED			RECEIVED			SOLD											
Date	Ord. No.	Quan.	Date	Ord. No.	Quan.	Date	Ord. No.	Quan.	Bal.	Date	Ord. No.	Quan.	Bal.	Date	Ord. No.	Quan.	Bal.
						1/6			12								
1/6	2010	50				1/8		2	10								
						1/12		2	8								
			1/17	2010	50	1/16		1	7								
						1/17			57								

One of the stock record cards, size 8-in. wide by 4 ⅛-in. high.

Storage of Materials

The storing of finishing material must be carefully arranged to comply with all state and city fire regulations, as well as to keep an orderly check of all material on hand. If possible, the best arrangement for the main storage room, which should be under proper supervision or under lock and key, is to have the unbroken containers or packages placed here.

When a container is tapped for use or any packages opened, they should be placed at some convenient place available readily for all the men, but yet under the supervision of one man—the foreman or some properly designated man. Entries should be made on the stock record card as soon as a container or package is started, and when the minimum quantity to be carried on hand is reached, the party who does the purchasing is notified and the material ordered.

Perpetual Inventory

If a perpetual inventory is maintained, it is best to make a physical check of several items each predetermined time, so that within a space of two or three months each item has been checked. This system allows for check-up on the perpetual inventory cards and assures an accurate check at all times. If no perpetual record is kept, a physical check should be made at stated intervals, and care should be taken that old stock or obsolete items are used first, or disposed of in some manner.

Whenever possible a check should be made on the amount of materials used in a particular job; this can readily be done by measuring the quantities used on a definite amount of the product to be finished. An allowance should be made for waste and spoiled goods and a record made for future reference and comparison.

A Model System

In a plant, employing approximately 25 men in the finishing department, the following procedure is used. A main storage room, consisting of a fireproof room, contains all unbroken packages. A perpetual card (see Fig. 1) shows all necessary information as to amount on hand (maximum and minimum quantities), when ordered, the amount ordered, amount received, and the balance on hand.

When the minimum amount is reached a requisition to the Purchasing Department is made in duplicate on a ticket like that shown in Fig. 2. One copy is sent to the Purchasing Department; the other is retained in the storeroom for record and reference as a follow-up on the Purchasing Department. The order number shown ties in the storeroom record card, the Requisition to Purchasing Department, the Purchase Order, the Invoice, the packages themselves and the voucher for payment. This gives a complete check on the entire procedure.

Requisition of the Purchasing Department

Date 1/6 1926

Order For Finishing Dept. Wanted At Once

Required for Stock

Order No. 2010 Charge to { Plant Maint. / Tool Maint. / Material ✓

Quantity	ITEM	
5 Gal.	Signal each White Enamel Lacquer (No. ..... Co.)	

Signed ..... Approved .....

Typical requisition blank, size 5½-in. wide by 8½-in. high.

The Purchase Order (Fig. 3) is made out in three copies, the original goes to the source of supply, the yellow copy to the receiving room and the white copy is retained in the Purchasing Department for check and follow-up.

The Purchasing Department copy is placed in a file to come up for reference within a short definite time for acknowledgment of order and prospective shipping date. A small card is placed in a file to come up on date specified for follow-up.

Complete Check-up

When the goods are received in the Shipping Department, they are checked against the copy of the purchase order and, if O. K. sent to the storeroom with the copy of the order. The storekeeper initials the order as having received the goods, whereupon it is returned to Purchasing Department, where freight bill and rates checked, and then the copy with the receiving department and store room checks are filed in the Purchasing Department, and the P. D. copy is sent to the cashier for payment.

All this may seem like unnecessary work and trouble, but it works out very simply and has cut down mistakes and confusion to a great extent.

One of the problems is the proper requisitioning of material for the various jobs. On a great number of jobs where the amount used is comparatively small, no accurate check on material used has been worked out. On the larger lots, tests have been made over a definite period of time and the amount needed is apportioned out, plus a certain allowance for loss and wastage.

No system is better than the men using the system. It takes co-operation of every key man in the organization to put the thing across. When properly co-operating the foremen can relieve themselves of much aggravation and trouble by following some definite plan of procedure.

Mayer & Loewenstein Co. in New Offices

Mayer & Loewenstein Co. announce that they are now satisfactorily located in their new office quarters, 43-43 Vernon Blvd., Long Island City, N. Y. This move, which brings the offices on the same premises with the factory, has just been completed.

Finishing Room Conveyors

Describing a system of surface and overhead conveyors used throughout the finishing department of a modernly equipped factory which is in volume production on small furniture

By F. W. Worthington

THE PRIMARY purpose of a conveyor is to move material from one point to another in a continuous "flow", thereby improving upon the practice of moving it in batches at intervals, as in trucking. In factory production, the conveyor's function is to move material from one operation to another, supplying each worker along the line with new material and clearing his station of finished work as rapidly as he completes it.

Conveyors have proved to be economical and efficient in many factories where there is volume production of standard articles on which are performed an identical or a similar sequence of like operations. The conveyor method of moving material is particularly adapted to several kinds of finishing and paint room work.

One concern which has adopted the conveyor system rather extensively is engaged in the manufacture of furniture novelties —such articles as smoking stands, humidors and smokers' tables; also, telephone table and chair sets. These articles, of course, are all small and they are put through in lots of not less than 1,000 of a kind. The finishes include two-coat varnish jobs in walnut and mahogany and decorative color finishes. Conveyors are used not only in the finishing department but in the assembly work which precede finishing, and in the metal trimming and packing activities which follow finishing.

Two Kinds Used

The finishing department occupies a ground floor plan of an outline similar to that illustrated

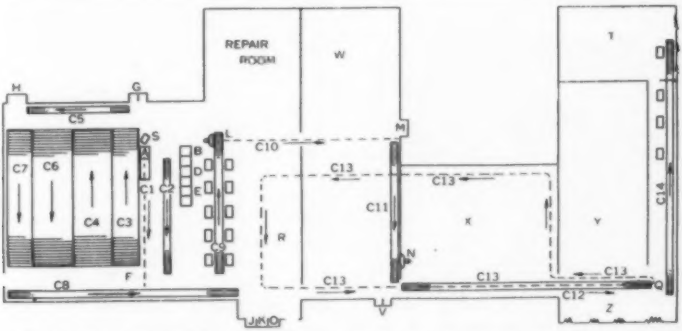

Fig 1—Floor plan of finishing department with all equipment marked by reference letters and figures.

in Fig. 1. Two types of conveyors are used—surface conveyors and overhead conveyors. The moving element in both kinds consists of single chains which run over sprocket wheels.

The narrow surface conveyors have wood cross slats centered and bolted onto single strand chains, the slats moving crosswise in flanged tracks, some of ankle height and some knee high. The four wide conveyors in the drying room each have three and four chains. See Fig. 2. The surface conveyors are represented in the drawing with cross lines inside suitable borders. The overhead conveyor chains have suspended iron hooks at intervals of two to four feet apart and are represented in Fig. 1 by heavy dotted lines.

Articles in the white enter the finishing room at station *S* by way of hooks attached to a belt which travels downward from the second floor. The man who lets them down from above takes them from an assembly and cleaning conveyor along which 20 to 25 workers are busy. He inspects, dusts and tallies them before releasing them to the finishing room.

Fig. 2—One end of the heated drying compartments through which furniture is carried by conveyors.

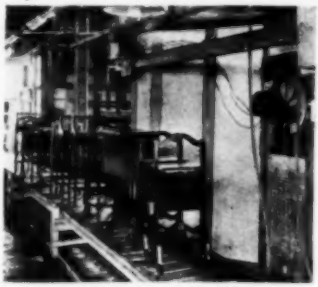

Fig. 3—Furniture moving along on the surface conveyor marked C11 in Fig. 1.

The squares marked *A*, *B*, *D* and *E* represent dip tanks, each fitted with a suitable drain board. One is for mahogany stain, one walnut stain, one is red primer and the other green primer. Overhead conveyor *C1* carries mahogany and walnut stained articles, while surface conveyor *C2* carries the color primed furniture. The idea in the use of two conveyors here is to separate the two classes of finishes so that neither will be stained or discolored by the other.

Through Drying Room

At station *F*, a workman transfers the articles to the wide conveyors *C3* and *C4*, which carry the goods slowly through a drying room heated to about 110-degs. F. More than three hours elapse in the passage of furniture through this compartment of the drying room. At the twin compartment spray booth *G*, furniture in color is given a coat of enamel. Stained furniture is given a preliminary coat of shellac only at such places as where end wood is presented. Then it is put on conveyor *C5* and transferred to spray booth *H* where an all-over coat of shellac is applied. Color enameled and shellaced fur-

ZAPON

Why is a pyroxylin base undercoat better?

Here are three reasons:

1—Adhesion to the surface is perfect because the film shrinks into the pores of the wood as the solvent evaporates, thus insuring maximum anchorage. Further, since the pyroxylin film, which is thoroughly stable upon the evaporation of the solvent, does not oxidize, the anchorage is permanent.

2—A perfect bond between the pyroxylin lacquer enamel and pyroxylin undercoat is insured due to the fact that the solvent in the subsequent finishing coats of enamel will attack the surface of the undercoat, causing a perfect amalgamation. It's not a case of "just sticking".

3—Production costs are cut because of the great saving in time and space effected by speed in drying.

Zapon White Enamel Undercoat 530-RE

Zapon White Enamel Undercoat 530-RE possesses excellent adhesive properties. It contains an opaque white pigment and has remarkable hiding power. It fills unusually well—two full wet coats are sufficient on most woods. It sands easily to a glass-smooth surface, forming a perfect base for the enamel. It may be tinted with a lacquer enamel to secure a ground color without affecting its filling and sanding qualities.

It will be well worth your time to test this Zapon product in your finishing room. We will gladly co-operate with your foreman finisher. Write to us today.

THE ZAPON COMPANY

247 Park Ave., New York City

BRANCHES

Chicago . . . 45th and LaSalle Sts.
Cleveland . . . 8810 Bessemer Ave.
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Los Angeles . 1214 Venice Boulevard
New Haven . . . . 185 Church St.
New York City . 547 Greenwich St.
Oakland . . . . 304 12th Street
San Francisco . 160 Seventh Street

ZAPON

The pioneer lacquer finish

niture is sent back through the other compartment of the drying room on conveyors *C6* and *C7*. This trip requires about two and one-half hours.

From conveyors *C6* and *C7*, the goods are transferred to conveyor *C8*. Shellaced furniture is transferred onto conveyor *C9*, but the color enameled pieces are unloaded back of the shading or high-lighting sprayers *J* and *K*. Conveyor *C9* passes between two rows of sanding benches (five in each row).

To and From Sprayers

At station *L* an operative, working in front of a booth and suction fan, dusts the sanded articles with an air gun, inspects them and transfers those that are O. K. to overhead conveyor *C10* which carries them to spray booth *M* for the first coat of varnish. The first varnish coat is followed by 24 hours of drying in storage space *W*. The goods are then moved to conveyor *C11* which carries them past stations where the final light hand sanding takes place, past duster booth *N* and on to spray booth *V* for the second coat of varnish. At this point, the articles are put on surface conveyor *C12* and transferred to dry storage areas *X*, *Y* and *Z* where they remain 48 hours to dry.

Decorated furniture from booths *J* and *K* enters area mark *R* for its required period of drying before proceeding to spray booth *O* for a coat of clear lacquer or to booth *V* for a coat of clear varnish. Everything sprayed at booth *V* is placed on surface conveyor *C12*.

Returns Rejects

As the second varnish coat dries in areas *X*, *Y* and *Z*, the goods are placed either on surface conveyor *C12* or hung to overhead conveyor *C13* and carried to the inspection station *Q*. Rejects are sent back by way of overhead conveyor *C13* and when they have been fixed, they are returned again on the same conveyor. Furniture O. K.'d by the inspector for final finish is put on conveyor *C14* which carries it past several trimmer benches where hardware is put on, and finally releases it in the packing room *T*.

Enjoyed Lake Chautauqua

After spending two enjoyable weeks at Lake Chautauqua, N. Y., Mr. R. D. Pinkerton, Manager General Sales Development, The Marietta Paint & Color Co., accompanied by his wife, returned to Marietta, Ohio, on the 16th of August.

New Industrial Alcohol Plant

During July the Eastern Alcohol Corporation began the manufacture of ethyl alcohol at its new plant located on the Delaware River at Deepwater Point, N. J. This plant, which is the most modern unit of its kind in the U. S., is owned jointly by the Kentucky Alcohol Corporation and the du Pont Co. Not only will it supply the du Pont Company's requirements for industrial alcohol, but it will also produce substantial quantities of this product which will be marketed through the established sales organization of the Kentucky Alcohol Corporation, with headquarters at 30 Broad St., New York City.

This plant—the first complete industrial alcohol plant built in this country since the World War—is up-to-date in every respect, embodying the latest improvements that have been developed in the manufacture of industrial alcohol from molasses fermentation. In design and operating methods it conforms strictly to the requirements of the government under the prohibition laws.

The fermenting and distilling equipment is of the latest design, and provision has been made to insure positive chemical control throughout all processes, so that this plant is capable of producing ethyl alcohol of exceptionally good quality.

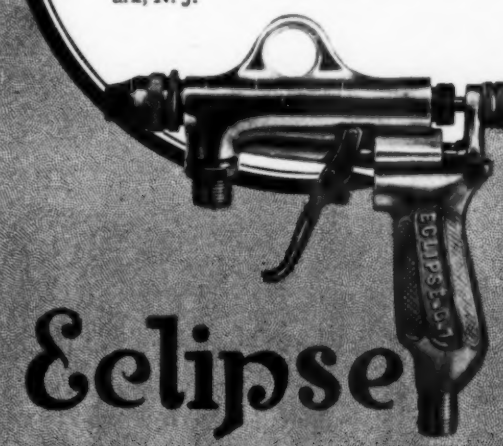
More than 100% Increase in Sales

During the first six months of 1926 the sales of Eclipse Air Brushes show an increase of more than 100% over sales for the same period of 1925.

This positive evidence of greater popularity pays tribute to the merit and emphasizes the need for these better Air Brushes.

It will pay you to investigate further why so many manufacturers are installing Eclipse equipment in preference to all others.

Just write for full information to the Eclipse Air Brush Company, 79 Orange Street, Newark, N. J.



Eclipse

Kindly mention INDUSTRIAL FINISHING when writing advertisers

Japanning; Tumbling; Burnishing; Polishing

Superintendent and Mechanical Engineer of Richmond Pressed Metal Works submits several interesting notes on modern metal finishing practices

By William S. Lyhne

CONSIDERABLE trouble was experienced recently in our japan room when we began japanning castings from a new source of supply. When baked, the japan flaked off easily and would not adhere at all. These castings had been cleaned in a naphtha dip and our man was unable to fathom his trouble. Previous experience had taught me that some foundries use an acid dip or bath for their cleaning or pickling of castings and that some of the acid stays in the pores and is difficult to remove, with the result that unless a thorough cleansing is given, the acid comes out when heated and "kills" the japan.

Proper Cleaning

Mention of naphtha reminds me of a difficulty I had in baking a red enamel on some of our goods. We cleaned the articles in naphtha, as the grease was very heavy and this method was faster than by other means. We found the enamel ran off till there was hardly any left on the goods and even the second coat was not sufficient to thoroughly cover the metal.

Experimenting showed that when a piece of white paper was stuck into the naphtha it did not thoroughly dry, but remained slightly oily. We then proceeded to clean the work in our regular compound cleaning solution and had no further difficulty.

What was happening was that we left a film of oil on the metal which caused the red enamel to run; this oil was even penetrating the first coating and effecting the second. After changing our cleaning method we found that one coat of enamel was ample for the job.

Tumbling Barrels

Tumbling work is another very simple operation, but because of its simplicity, it is often done without a proper study of the purposes of the equipment. Barrels are generally run too slow. Of course, if they are run too fast they do not properly tumble, but allow their contents to bunch up. To overcome this, I have placed a stick in a tilting barrel, extending it from the bottom across to near the top on the other side. This breaks up the work and cuts down the tumbling time.

To keep brass pieces from tarnishing, one of the best things I have found is a little cream of tartar mixed with clear water.

Burnishing by Tumbling

Burnishing is along the same lines and in this I have seen many tumbling barrels run as slow as 20-r.p.m. while 60 to 80-r.p.m. is much better. Then, too, many concerns use altogether too large steel balls. Use small steel pebbles (large enough so they will

THE FINAL FURNITURE FINISH

That's ARMORLAC, a permanently beautiful finish, on wood surfaces, which cannot be achieved with varnish.

In these days of ever-changing styles, requiring all the skill of the finisher artist to cope with the aristocracy in furniture, the Armitage ARMORLAC System of Lacquer Finishing is a welcome advantage.

Investigate ARMORLAC—costs no more than finishing with varnish—lasts as long as the furniture.

We have the evidence. May we send it?

JOHN L. ARMITAGE & CO.
Established 1876
Newark, New Jersey

Armitage
ARMORLAC
LACQUER SYSTEM
The Final Furniture Finish

not get into holes in the work) and lots of them.

Some of these pebbles are pear shaped and the result is they get into very small angles and do a wonderful job. But be sure to use as small steel balls or pebbles as possible, as these do not fracture the surface of the metal with such big dents.

Care of Glue

The mucilage or glue pot: Holy horrors, but what a neglected and unknown quantity it is to the great majority of users. Several years ago I had to make a thorough study of glue, its uses, abuses and idiosyncrasies. I know of no place in a factory where it is used that greater savings can be affected, especially if used on polishing wheels.

Glue pots become full of germs, and if pots are not cleaned every day these same germs kill the adhesive value of the new glue. Temperature is a vital factor in getting the best results from glue. Glue should never be boiled; in fact, it should never go over 140-deg.F. and should be used within four hours. Naturally this shows that only small lots should be mixed at a time. In mixing the glue and water, the parts should be measured by weight. If glue is used on polishing wheels the glue joint should be capable of being bent double without breaking, to insure flexibility, as wheels are subject to change of contour while being used.

Progress in Varnish Manufacture

The great strides made by lacquer in recent years have naturally created intense research on varnishes which could better withstand the competition of pyroxylin products. A Middle Western varnish company has developed for the furniture trade a 24-hour rubbing varnish of high quality, which as its name implies, may be rubbed 24 hours after application. A schedule of one or two coats of shellac, one coat of gloss varnish and one of this quick-rubbing material gives a finish closely approximating lacquer, at low cost and with only slightly greater time and labor.

The same company is marketing a flat varnish which differs markedly from the usual run of varnishes that are flattened by such materials as transparent pigments, beeswax, aluminum stearate, etc. The attractive rubbed effect of this varnish is obtained by the combination of resins and oils used. Since there is no pigment, there is no settling, and the absence of waxy material gives a much harder and quicker drying material.—S. P. W.

Shaefer Co. of Louisville

The Schaefer Co., a new varnish manufacturing concern of Louisville, recently incorporated and headed by Harry Schaefer, formerly vice-president and sales manager of the Sun Varnish Co., has started on a new brick and metal varnish plant to be located at 1315 West Kentucky Street, in the same general district in which most of the local varnish plants are found.

Long Service Employes

An interesting feature of the recent paint and varnish conventions held by the du Pont Co. was the presence of numbers of men who had been for 15 years or more in service. In the Philadelphia District there were the following: J. M. Collins, with a service record of 20 years; A. McCollister, with the company 24 years; C. H. Stowell, 29 years' service; B. F. Yeager, 25 years; J. M. Fisher, 16 years; and P. J. Phelan, 16 years. In the Boston District, A. K. Woodward has 31 years and A. E. Chase, 16 years of service. In the Chicago District, T. A. Bannister and H. R. Hirsching each have 15 years.

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First installment of a series of interesting and practical articles by an authority who has given this subject extended study and investigation.

Modern Furniture Decoration ---Antique Shading

By R. J. Meade

IT IS in the time of Cicero that we read of a desk costing the modern equivalent of $45,000, worked out in intricate inlayed patterns of cedar, boxwood, holly, cherry, ivory, horn, tortoise shell, gold and silver. During the Middle Ages the heavy, sombre Gothic style were relieved by symbolic and geometrical carving; later the Italian Renaissance period gave to the world polychrome, and during the Restoration in England arose the passion for Oriental lacquer work, raised landscapes in gold and silver on backgrounds of rich blue, red, green and brown.

Thus the embellishments of furniture to disguise its utilitarian purpose is no new thing with mankind; it is in the manner in which we carry it out today with new materials, equipment and methods that the most interesting difference lies. Nor is furniture in this age an appurtenance only of the rich and powerful as it once was. Today, the most humble desire and can obtain, at a price within reach, what in former days would have been beyond aspiration.

The Antique Effect

The process of high-lighting, or blending, or shading, as it is variously known to finishers, is based on a desire to duplicate as far as may be possible on new furniture, the worn effects we observe on antiques which have undergone years and years of use, thereby taking on an agreeable form of coloring which enhances the beauty of the piece.

The greatest skill is required in correct high-lighting, since it should be applied only where natural wear would take place, as around keyholes, doorknobs and handles, in the centers of panels, along mouldings, chair and table rails, and on raised carvings and turnings, blending out gradually to the shaded surrounding area in a degree proportionate to the size and design of the piece.

The knack lies in producing a

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blend between light and dark that will appear to be a part of the wood and not an abrupt change, as with two toning where this line of separation is sharply defined. Experiment is the best way to determine how this should be done and in this article are described various favorite processes by which the work is accomplished.

By Spraying

In the case of water stains, to take a walnut cabinet panel for an example, the center is left almost natural, and on the remainder the stain is sprayed on in a solution of about 3 to 4-oz. of powder to the gallon of water. The spray gun is held fairly close (about 12-in. away) and the spray passed back and forth over the corners and edges, gradually being drawn away as the center of the panel is approached, at the same time releasing pressure on the trigger to cut down the flow of material.

In this manner outer edges only are actually stained; the central area is merely "fogged" or "misted" but carefully graduated in tone. Failure to blend out delicately gives the impression of a light oval, circle or square framed by a dark area. Usually it is best to do the work in two applications, correcting any mistakes in the first after it has dried. Holding the spray directly on a given corner in order to hasten the operation will only cause the stain to "puddle" and blotch which must be evened up later by careful hand sanding.

After the stain has dried, a wash coat of shellac, shellac substitute or lacquer is applied, sanded and followed by paste wood filler; then follow the regular finishing operations.

In the case of a brown mahogany finish on mahogany, the problem is somewhat different due to the natural light reddish undertone of the wood itself, which first must be uniformed all over. To accomplish this, brown mahogany water stain is first sprayed all over evenly, one or two ounces to the gallon of water. When this is dry a 3 to 4-oz. solution of the same stain is spray-shaded on, as indicated for the walnut process above. The same system applies to birch and gum framework, which incidentally should be coated with the same wood filler as is used on the mahogany or walnut in order to insure a uniform color for the piece as a whole.

Oil stains are sprayed for high-lighting purposes in the same way as water stains, except that it is sometimes necessary to wipe the stain by hand in addition, to get a clear toned effect and bring out all the high lights. Any excess application, observed after the stain is dry, may be evened out with steel wool No. 00 or fine sandpaper.

By Wiping or Sanding

If no spray is available, or if the finisher hesitates to attempt high-lighting and blending in this manner, it is possible to secure very similar results with No. 0000 sandpaper, or preferably No. 00 steel wool. This too requires skill, but of a somewhat different sort even though the principles are the same as to where the effects are to be produced. The common practice is to high-light by wiping while the stain is still wet, working on several sections of the piece at a time and improving the effect wherever desirable with sandpaper or steel wool, after the stain is dry; no hand work can be considered a

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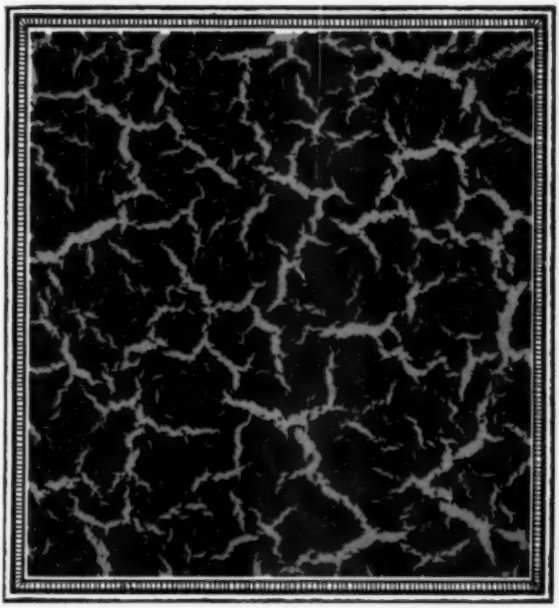

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success where sandpaper marks show through the finish.

This method is particularly desirable on smaller objects, where the spray would be unhandy or wasteful as with candle sticks, lamp bases, picture frames and kindred novelties. Owing to their quickness of drying, water and spirit stains do not lend themselves to high-lighting by wiping.

By Spirit Staining

For some classes of furniture a practice has arisen which probably has more to recommend it on the side of speed and economy than durability. Whether close or open pored, the wood is first filled, and in 24 hours sprayed with a glaze made up of spirit soluble anilines dissolved in denatured alcohol or lacquer thinner, then added to thin shellac or clear lacquer. The proper shade is blackish brown, and it is applied in the center as a mist coat only, more heavily around the outer area to be shaded, just as with water stain.

When dry, a full wet coat of gloss lacquer is applied, followed by another either of gloss lacquer to be rubbed or flat lacquer. The spirit stain-shellac or lacquer shading method to a large extent, also serves to seal the filler, taking the place of a shellac or lacquer wash coat and flat lacquer eliminates the necessity for rubbing. Thus, stock may be kept on hand finished up to the filler coat, and supplied quickly in solid or shaded effects as orders may require.

The drawbacks are similar to those for many finishing short cuts. In the first place the spirit anilines are very fugitive to light and may fade before the piece is packed. Secondly, the lacquer mixture often does not knit to the filler as securely as it might, which means that a hard knock or scratch may loosen its anchorage and take off with it the top finish at such a point. Thirdly, the spirit anilines have a tendency in time to rot the lacquer vehicle leading to progressive peeling of the finish film.

By Pigment Staining

The newest type of antiquing medium consists of a pigment lacquer stain which has none of the shortcomings above cited, and with all the advantages of speed. It may be applied with equally good results over clear lacquer, lacquer enamel, filler or shellac, requires no sanding except to improve high-lighting, and dries to finish over in one hour. It should be sprayed on in a very fine mist. When properly handled, it gives an excellent shaded effect, although it is in no sense to be compared in clearness of tone with water stain shading. It is simply the safest of the short-cut methods and the material may be obtained from most leading lacquer manufacturers to be thinned as directed by them.

A pigment oil shading stain, which may be brushed as well as sprayed and high-lighted by wiping, consists of equal parts burnt sienna and burnt umber, japan colors mixed in boiled oil, solvent naphtha and thin asphaltum. It may be wiped within 15 minutes of application but should stand overnight before being coated with shellac, varnish or lacquer.

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Lacquers For Polished Metals

Calling attention to the peculiar characteristics and requirements of thin lacquers which are applied to such polished metals as brass, copper and silver

By S. P. Wilson

THE COPPER, brass and silver-plating industries are among the oldest users of both gum and pyroxylin lacquers. Rapid tarnishing of the bright surfaces of these metals made a protective coating almost imperative; and the freedom from acid, speed of drying and light color of the pyroxylin lacquers soon made for them the important place they hold today.

Contrasted with the four or five years of experience in lacquer finishes possessed by most of the furniture and automobile men of today, there are men in the plating industries who have had nearly 30 years' experience with this type of product and who, in many respects, have a better knowledge of its properties and application than the chemists of the newer lacquer companies.

As a general rule, these men have settled on one or another of the older firms in the industry as their source of supply and there is small wonder that with their years of satisfactory experience, they often refuse even to consider a change. However, many of the more progressive finishers have kept abreast with the tremendous strides made by lacquer in recent years, in other fields, and are willing to experiment to some degree to see if betterment in work or economy of production might be achieved. It is to be hoped that this will become a rule rather than an exception.

Used Very Thin

Metal lacquers differ considerably from those used in the furniture, automobile and other industries, not so much in ingredients as in proportions, in viscosity and other physical properties. Clear metal lacquers, such as are used to apply a thin protective coat over plated ware, do not possess a high solid content, but as a rule only about 8-oz. of high grade, high viscosity pyroxylin to a gallon.

Since there is generally no need of filling or "surfacing" the smooth surface of the metal, high solid content is of secondary importance. On the other hand, metal lacquers must adhere perfectly to bare metal, and must give a uniform protective film in high dilution—being often thinned as much as three parts reducer to one of lacquer. For these reasons, as well as to obtain additional gloss, small proportions of high grade pale resins such as dammar are usually incorporated.

The utmost care is taken that the pyroxylin and resins, as well as the solvents are free from acids which might corrode or tarnish the metal. Some solvents, perfectly suitable for other work, are undesirable in metal lacquers because, although free from acid to start, they have a tendency to develop acidity while standing.

Long-fiber Cotton

The pyroxylin used in the better grade of lacquers is not usu-

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ally made from the short fibers or linters of cotton, but either from long-staple cotton or from a tissue paper made from selected rag stock. It is bleached to water whiteness and every effort is made to keep it free from undesirable impurities. As stated before, it is generally made of a fairly high viscosity, and thus requires a high proportion of high grade solvents to bring it to workable consistency.

Solvents and Diluents

The solvents used for years in this industry are amyl acetate and amyl alcohol, sometimes known as banana oil, and refined fusel oil. These possess every requisite for this type of lacquer and are still widely used although for economy's sake, much butyl acetate and butanol are being used. As diluents toluol, xylol and 60-deg. gasoline are used. Many of the newer solvents become acid too quickly or do not give the correct flow to the lacquer. Some evaporate too slowly and leave too long-lasting an odor.

One of the most important requisites of a high grade metal lacquer is freedom from specks or haze. In the best pyroxylin, particles of improperly nitrated cotton may be found; dust settles everywhere; mixers and other apparatus may be dirty. But the finished lacquer must be optically pure as far as many of the largest users are concerned, and this is obtained in a variety of ways. Long settling in tall tanks is one of the best, but most expensive ways. Centrifuging is quicker and in many cases satisfactory. Filtering through special paper with the proper material to collect the fine cloud together is one of the best all around methods.

Of course, much metal lacquer is used for cheaper work such as curtain rods, trunk hardware and lighting fixtures, where price is a big factor and where this care is impracticable; but for high grade work on silver plate and fine brass compacts, etc., a manufacturer rightly demands high quality lacquer.

Blushing Impossible

The solvents must be of a grade that makes blushing impossible. In production work on thousands of articles daily, there can be no time wasted in reworking goods that have blushed, and such a lacquer should stand 80 per cent. relative humidity at 80 to 90 degs. F. A properly ventilated shop will permit of economy in lacquer, as a cheaper solvent mixture can be used, but a margin of safety should always be left, lest this annoying trouble ruin a day's work.

Lacquer Enamels

The enamels used on metal ware are also different in their composition and application than those used on automobiles or furniture. In the first place, they are seldom applied over a primer, or if a primer is used it is on a lacquer and not an oil base. Secondly, they are not often meant to be rubbed or polished, so the smoothness and luster must be in the lacquer itself. Thirdly, they must be cheaper than automobile enamels and possess more flexibility, for these metal articles are often handled and bent.

There is generally no need of filling, so the pigment proportion is low; but since those lacquers of highest covering strength are used few coats are required, one being sufficient for most work. A flat enamel coat followed by a clear lacquer coat, sometimes

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"The Lacquer with a varnish plumpness"

Speed, toughness, non-printing and water-resistance have been the big selling points for lacquers.

Lack of body on the wood and little plumpness to the finish have been drawbacks to the use of lacquers.

Our years of experience in handling gums enabled us by a special process to work into our lacquer Pale Hard Kauri Gum.

Send for free working sample of Pale Kauri Kote, and full instructions will be given to enable you to produce a lacquer finish with a varnish-like plumpness.

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containing a small proportion of enamel, is almost standard in the lighting fixture industry.

Combination Finishes

Combinations of the chemical finishes, to which copper and brass are especially adapted, and lacquer finishes are widely used and these form one of the most interesting fields for a wide awake finisher to create new and attractive designs. Some of these finishes will be the subject of a later article.

All the care taken by a manufacturer will be nullified by careless handling of the lacquer. It should never be in contact with iron. Tin and aluminum are the best metals to use. Really, such lacquer is best stored in earthenware or glass receptacles or in metal, lined with vitreous porcelain enamel. Dust should be avoided as far as possible.

Dip Lacquers

A word about water dip lacquers might be worth while. These are generally gum lacquers, containing no pyroxylin. They are solutions of varnish gums in such solvents as fusel oil and gasoline, and are used on the cheaper plated goods because the objects can be dipped in the lacquer directly after rinsing. Water, instead of mixing with the lacquer or throwing out the pyroxylin, settles to the bottom and is periodically tapped off. For a temporary protection they are often suitable, but they have a tendency toward acidity and a brittleness that makes them unsuited for the better grade work despite their unquestioned value in many fields.

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Cincinnati Varnish Co. Addition

The Cincinnati Varnish Co., Cincinnati, O., has awarded the general contract for a one-story brick addition to its plant which will be used for the manufacture of industrial paints. The varnish concern will expend $20,000 in the addition and will buy ten paint mixers and three 26-inch mills. Work on the addition will start immediately.

New Product

The Marietta Paint & Color Co. report that there has been an unusual response to their recent announcement to the Industrial trade on "Varnitro", which is a varnish product, combining, according to the company's claim, all the best working features of a lacquer and a varnish in one product. The new material is said to be an economical and efficient wood finishing product.

Cook Buys Houston Factory

The Cook Paint and Varnish Co., Kansas City, have contracted for the purchase of the property formerly owned by the American Cotton Oil Co. in Houston, Texas. This consists of a five acre tract of land served by two railways and improved by a three story and basement brick building 100-ft. x 100-ft. and oil tank storage totaling 350,000 gallons.

The new property will be immediately remodeled and equipped to manufacture a complete line of paints, enamels and varnishes. The installation will include modern paint manufacturing machinery and varnish stacks.

The Cook company, of which Charles R. Cook is president, is a concern known for its aggressiveness and conspicuous growth. In addition to its offices and plants in Kansas City, it has factories in St. Louis and Fort Worth and branches in Omaha, Denver, Dallas, Oklahoma City, Tulsa, Wichita, Chicago, St. Joseph and Kansas City, Kansas.

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Finishing Radio Cabinets—I

First installment of a two-part article which describes some typical difficulties in wood finishing, and suggests causes, corrective measures and alternative methods

By R. L. Masterson

A WELL-KNOWN manufacturer of radio cabinets recently inquired about certain difficulties that had been experienced in finishing radio cabinets with clear lacquer.

These particular cabinets are made of Tennessee or Kentucky poplar which, as is commonly known, is a very porous wood, made up of alternate streaks of very soft wood and quite hard wood. In constructing radio cabinets one piece might be very soft and the adjacent piece quite hard. Some difficulty has been experienced by this manufacturer in obtaining a smooth, durable, satin finish at a reasonable cost.

Long experience and numerous tests seem to prove that the concern, at present, is finishing this wood to the best advantage, consistent with cost, but the manufacturer would like to know if any one can suggest a better system of finishing than they are now using, so as to produce a finish equal to the present one, at a lower cost.

One System in Detail

The present system of finishing is to use a penetrating oil stain which does not raise the grain of the wood, which does not fade nor bleed. This stain is applied with a spray gun. After the stain is dry a complete coat of filler is applied and allowed to dry thoroughly. The finisher says that while the filling operation is hardly necessary, as the pores in the wood are not large or pronounced, he finds he gets a better finish with a more evenly distributed, brighter color by using the filler coat. Two coats of a well known, reputable clear wood lacquer, reduced at the rate of one part of reducer to four parts of clear lacquer, are applied over the filler. Each coat of lacquer is allowed to stand over night, with a careful sanding between the coats.

Typical scene in a furniture factory where the spray system is now in almost universal use for applying finishing coats.

The last coat is rubbed down with pumice and rubbing oil, with a felt block, and then carefully cleaned with a mixture of benzine, linseed oil and lampblack to remove all the rubbing oil. In spite of this precaution, the finisher has been troubled with bloom appearing on the finish after it stands for some time, and he is also interested in knowing of any better way to remove the

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rubbing oil and to prevent this bloom from forming.

Two or three suggestions might be made to reduce the cost of the finish, but whether any of them can be adopted will depend upon the conditions at the manufacturers' factory, and whether the resulting finish would be acceptable from the standpoint of color, appearance and in other respects.

Application of Stain

It might be possible to get satisfactory results by dipping the stain instead of spraying it. While the dipping method would use more stain than the spraying method, due to both sides of the work being coated, there should be a saving in labor to more than offset this. Even if it is necessary to wipe off the surplus stain with rags after the cabinets have been dipped there would probably still be a saving in the dipping method.

It might be necessary to change the stain slightly as to the type of solvents used, the amount of color and the shade of the color, to use it successfully by dipping. Whether the dipping method can be used at all depends upon the construction of the work, the color desired and other questions which cannot be definitely settled at long range.

Then there is the possibility of entirely eliminating the staining operation and securing the desired color by use of a filler that has sufficiently strong staining powers to act both as a stain and a filler. Whether this can be done depends almost entirely upon the exact color desired. If the finish is of a walnut shade it can probably be accomplished successfully, but if it is of a deep mahogany color there is some doubt.

Although there is some likelihood of not obtaining as uniform a color without the stain as with it, due to some pieces being softer than others, the idea is worth a trial. Be careful, however, to obtain such a combination stain and filler from a thoroughly reliable manufacturer, who understands the requirements of a filler for use under lacquer, or new difficulties may arise.

Filler or Shellac

Possibly the coat of filler could be eliminated by using a coat of pure white shellac, reduced at the rate of about equal parts of a four-pound cut and denatured alcohol, so as to give about a two-pound cut. The labor cost of applying the coat of shellac by spraying would probably be less than that of applying and wiping off the filler. The shellac coat would have to be sanded, but if this were done it would probably not be necessary to sand between the lacquer coats, so the cost from this standpoint would be no greater. Whether this method would be satisfactory again depends upon the color desired and the size of the pores or other small imperfections in the wood.

Lacquer First-Coater

Even better than this coat of shellac would be a coat of clear lacquer first-coater, which has recently been developed and is being used with considerable success on furniture. This lacquer first-coater contains a quantity of pigment in suspension to give it good filling and easy sanding properties. Although it has a milky appearance in the can, it dries perfectly transparent and does not discolor the work. If advisable, however, a small quantity of spirit soluble colors could be dissolved in it to give it a

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AGGRESSIVE furniture manufacturers are using this new lacquer on various schedules to secure all types of wood finishing effects.

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slight color and thus aid in producing a uniform shade. It dries hard enough in five hours to sand even more easily than shellac to a very smooth surface, free from scratches, yet it leaves a film that is tougher, more adhesive and more elastic than shellac. Being built on a nitro-cellulose lacquer base, it makes a perfect bond with the succeeding coats of clear lacquer.

Final Flat Lacquer

There is still another possibility of saving in labor cost, provided the finish would be entirely satisfactory. This lies in the use of a flat-drying lacquer for the final coat. Flat-drying lacquers are now obtainable which spray on very smoothly, and when dry they so closely resemble rubbed work that an inexperienced eye can scarcely detect the difference.

One such flat lacquer that I know of gives no trouble from small specks of dirt or undissolved matter, and is capable of being rubbed in the same way as a clear lacquer on such parts as this may seem advisable.

It is obtainable in different degrees of luster to closely approximate dull-rubbed or slightly polished work as desired. It might be possible to rub only the tops and possibly the fronts of the cabinets, letting the sides go just as they dry out from the spray gun—or possibly no rubbing at all would be required. This flat drying lacquer could be used either for both coats or over the present lacquer to replace the final coat. For the very best results the undercoat of lacquer should be sanded lightly before the flat lacquer is applied, but this is not absolutely necessary.

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Sanding For Final Finish

To secure a smooth and well finished wood surface, it is necessary that the exposed surfaces be given a thorough sanding to remove any small particles of dust, dirt or varnish nibs, before applying the final finishing coat. Some finisher foremen and a few manufacturers' representatives claim that just as good a job can be obtained by eliminating this sanding operation before the final coat, but anyone with a knowledge of finishing can readily observe the difference in the finish on sanded and unsanded articles.

The unsanded article really adds considerable more labor and material in the rubbing department, regardless of how clean the finishing room may be kept. Small particles of dust or dirt will settle in the coating and this should be sanded out to insure a clean, smooth surface, as the rubbing operator can not secure a first-class job where there is dust or dirt in the undercoats.

The rubbing operation will remove these small particles of dirt from the final coat but if the finisher attempts to rub out the dirt which is in an undercoat, it will probably result in a rubbed-through surface, thereby causing the work to need refinishing, and this in turn will require extra labor, material, and a probable loss of time in shipment.—J. H. S.

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PALE RUBBING VARNISH

Primers for Leather, Paper, Cloth

Owing to the absorbent and flexible qualities of these materials they present entirely different problems to the finisher than wood, metal or fiber

By E. Perry

LEATHER, paper and cloth are great absorbents of liquids, and due to their elastic and flexible nature, they need different treatment from more rigid materials. They are usually given a coating of glue or shellac sizing previous to painting. These sizings are made as follows:

Glue Size is made by soaking one pound of white sizing glue (¾-lb. of fish glue and ¼-lb. French gelatine) in one quart of cold water during three to four hours, then pouring onto this softened glue three quarts of boiling water. One-half ounce of white soap, previously dissolved in the three quarts of boiling water, is an addition which renders the size sufficiently elastic to withstand bending.

Water-Lac Size is made by dissolving 4-oz. of sal soda (or 8-oz. of borax) in one gallon of hot water, then adding one pound of either orange or bleached shellac gum according to the color desired, and heating at about 200-deg. F. or just under the boiling point, until the shellac gum dissolves. When cold, this solution is strained through fine cheese cloth. This size dries waterproof. Sometimes it is desired to make cloth and canvas waterproof and fireproof; then the fabric should be treated with the following solutions:

Flexible Waterproof Sizing is made up of two solutions (a) and (b). The (a) soap solution is made by dissolving two pounds of hard white soap shavings or chips in two gallons of hot water; the (b) alum solution is made by dissolving one pound of alumina sulphate, or 1½-lbs. of common potash alum in two gallons of hot water. The cloth is given a coat of the soap solution which is allowed to dry; then the alum solution is applied hot and allowed to dry. The result is an insoluble alum soap formed within the meshes of the cloth.

Fireproof Liquid for cloth is made by dissolving 16-oz. ammonium sulphate, 5-oz. ammonium carbonate, 4-oz. borax, 6-oz. boracic acid, and 4-oz. of common laundry starch in 1½ gallons of hot water. The fabric is saturated with this solution previously heated to about 86-deg. F., then allowed to dry.

Paper also may be treated with any of the above solutions, but the best sizing for paper is made by dissolving one ounce of French gelatine in a mixture consisting of 7½ fluid ounces of warm water and ½ fluid ounce of glycerine, then adding a mixture consisting of ¼-oz. of borax dissolved in 8 fluid ounces of warm water. To preserve the solution, add twenty drops of formaldehyde.

Lettering and Stenciling

Lettering on unsized cloth or paper for cheap signs, without any spreading of color, is done by mixing any of the desired pigment colors with one part of damar varnish thinned with three parts or more of turpentine.

Stenciling designs or letters on cloth or paper with oil colors is successfully done by thinning the paint with gasoline. Likewise, painting on velvet, plush, and silk is easily done with colors, without the oil spreading, if the paint is thinned with gasoline instead of benzine or turpentine.

If a water-color stencil paint is desired, mix any dry pigment with sufficient "dextrine solution," made by dissolving 4-oz. of white dextrine in 6 fluid ounces of cold water. When applied and dry, the color may be varnished with any oil varnish, damar varnish, etc. This is also the basis of the many graining compounds on the market for applying and manipulating over suitable flat ground colors in imitation of the various woods, but the paint manufacturers grind the pigment in water with or without the binding medium.

Final thinning of the ground paste is done with water—2 parts water and alcohol one part. The addition of denatured alcohol causes quicker setting up and prevents a flowing together of the wood graining produced. In oil-color graining, and the English "scumbling," a megilp preparation is similarly resorted to as a "stop-flow" to maintain the clearness of figure or design produced.

Old Iron Effects

We have in the furniture of the sixteenth and seventeenth centuries, both Spanish and Italian, where an abundance of wrought iron is used both as utility hardware and for ornamental enrichment. The following process will produce an excellent reproduction of "old iron."

1—See that iron is clean of any oil.

2—Apply thin coat of black in japan.

3—Apply wash coat of white shellac.

4—Cut burnt sienna in japan, using a bristle brush to stipple in spots (using your own judgment to get the right feeling).

When dry, use raw umber, vandyke brown—as glaze or overtone. While in this stage use chrome orange deep (powder dry) and dust in lightly; this will produce the desired rust effect. When this is accomplished, dust in whole with gray rottenstone and take care that all surplus dust is removed. This finish can be used for both inside and outside work.—L. Hess.

New Finishes Announced

The Stickney Color Co. of Indianapolis, Ind., have brought out a new base undercoat and new crackle top coat for producing crackle finishes on wood or metal surfaces. These finishes are in colors particularly desirable for use on furniture, radio cabinets, etc.

Ault & Wiborg Sales Manager

Prior to his departure on a vacation to Europe, accompanied by his wife and two granddaughters, L. A. Ault, president of the Ault & Wiborg Co., Cincinnati, announced the appointment of W. F. O'Brien, salesman connected with the company for the past 20 years, as sales manager in charge of the varnish division. Mr. O'Brien succeeds W. H. Durnell, who preferred to travel on the road and who now is working out of the company's Detroit, Mich., office.

LACQUERS for Autos

Extensively used, free from gum, uniform, reliable and economic. Pioneer lacquer makers who can satisfy your requirements. Write for prices.

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Works—Newark, N. J. Since 1857

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PRACTICAL PUBLICATIONS, Inc.
Publishers
Room 603, 222 E. Ohio St.
Indianapolis, Ind.

Issued monthly. Distributed exclusively to executives and foremen finishers in all kinds of industrial plants where finish coats are applied.

SEPTEMBER, 1926

Industrial Alcohol Used Extensively

Twenty years ago comparatively little ethyl alcohol was produced in this country on account of the heavy internal revenue tax imposed. American manufacturers obtained their supplies from abroad, and this condition continued until the advent of the World War. Since then the rapid development of the American chemical industry has brought with it a steadily increasing need for this product.

Denatured ethyl alcohol is consumed by such a large variety of industries that it is considered to be one of the most important materials now manufactured in the United States. The fact that this alcohol is a low-priced solvent in comparison with others makes it practicable for many industrial uses.

The use of alcohol for industrial purposes is permanent and consumption should continue to increase as our various industries expand. The comparatively new development of pyroxylin finishes has been an important factor in increasing the consumption of ethyl alcohol in this country.

The outstanding merits of these finishes are now well established and there is every reason to believe that the demand for them will steadily increase. Likewise, some alcohol is used in the manufacture of rayon. Radio manufacturers use it, as do also electrical manufacturers. In short, both in newly developing industries and in long-established ones, this solvent is finding larger and broader markets.—DuPont Magazine.

Paint and Varnish Exports

American paint and varnish manufacturers transacted a foreign business in their products exceeding $13,000,000 in value during the fiscal year ended June 30, last, an increase of nearly $2,000,000 over the preceding twelve months, it is shown by an analysis of statistics just issued by the Bureau of Foreign and Domestic Commerce. With the exception of oil varnishes every class of paint and varnish showed increased export values.

Shipments of enamel paints during the fiscal year reached a total value of $1,216,060, as compared with $564,754 in the preceding year, the greatest percentage increase registered in any type.

Exports of other ready mixed paints totaled 2,192,415 gallons, valued at $4,523,916, as compared with 2,098,862 gallons, valued at $4,364,770, in the fiscal year 1925 and other paint exports totaled 11,509,686 pounds, valued at $2,490,478, as compared with 9,529,435 pounds valued at $1,749,672.

In the field of varnishes, oil varnish shipments dropped in value, although increasing in quantity from 668,790 gallons, valued at $1,191,308, in the fiscal

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Industrial Finishes
SINCE 1846
TRADE M&L MARK

High Grade Drawer Finishing
— AT LOW COST —

Your salesmen know the importance of well finished interiors for case goods. It is a big selling point in every store. Yet how often is this important feature neglected?

There are many cheap as well as extravagant methods for finishing drawers. There is one sure way of producing a high grade, yet low cost finish.

M & L CLOVER LEAF

VELVET DRAWER COATER

Dries in twenty minutes to a flat velvety finish, but requires no rubbing.

It does not raise the grain of the wood.
One coat looks like two of other varnishes.
Spraying gives best results.
Made in Clear, Orange and Mahogany shades.
Five gallon sample will be cheerfully forwarded at the drum price.

Write for information.

A FEW WELL KNOWN CLOVER LEAF PRODUCTS

664 Quick Flint Filler
M & L Enamels
Enamel Undercoaters
No. 12 Adamant Lacquer
Adamant Rubbing Varnish
Adamant Flat Rubbing Varnish
Radium Rubbing & Polishing Varnish
Adamant Flat Lacquer

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Manufacturing Specialists since 1846
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year 1925, to 674,612 gallons, valued at $1,176,425, in the fiscal year 1926, while exports of other varnishes increased from 305,252 gallons, valued at $533,453, to 485,899 gallons, valued at $897,433.

Commercial Bodies

In one of the smaller establishments where commercial bodies are manufactured for school busses, rural mail carriers and various business establishments, the bodies are moved around in the paint shop on low skeleton trucks fitted with swivel castors,

New bodies for rural free delivery service, air drying in paint shop.

as shown in the accompanying picture. For the most part the undercoats and finishing coats are put on these bodies with the spray gun.

This concern, like many others in this line, is confronted with the problem of obtaining a uniformly smooth surface, color and luster on both the wood and iron or steel surfaces exposed to view on these bodies. The more-rapid-drying short-oil primer, which is suitable for metal surfaces, is unsuited for use on wood, as it does not give the lasting satisfaction and durable wearing qualities characteristic of long-oil primer for the wood parts.

As a result it is customary to begin the painting job by shielding the metal parts and applying a long-oil and lead primer on the wood, which in this case is generally oak. The long-oil primer is allowed to air dry 48 hours. It is followed by the metal primer which is given 24 hours drying time. This metal priming coat is sprayed on and allowed to overlap along the edges on the painted wood, as this slight overlapping of the spray does no harm.

On the better class of work the priming coat on wood is followed by a sanding surfacer to fill and level off all traces of wood grain that shows through the priming coat. This produces on the wood surfaces, a degree of smoothness that corresponds to the natural smooth surfaces of the metal panels and moldings. Two coats of color varnish follow on wood and metal alike. Then comes the striping and lettering followed, when dry, with an over-all coat of clear varnish.

In some cases the wood band around the top, being of clear oak, is finished in natural golden oak. It is stained, filled and given two coats of varnish.—M. C. P.

Matthews' New Manager

W. N. Matthews Corporation of Saint Louis, manufacturers of mechanical painting equipment, announce that the Chicago and surrounding territory has been placed in charge of a new district manager, Mr. George M. Gerew, formerly assistant sales manager of the Binks Painting Equipment Co.

This territory comprises all of northern Illinois, southern Wisconsin, northern Indiana and southwestern Michigan. Mr. Gerew, in addition to covering this territory with a competent sales force, also maintains a well-manned service department which enables him to render the utmost in service to users of Matthews Mechanical Painting Equipment.

For finest rubbed effects, rely on this time-proved Johnson product. ¶Particularly on fine-grained woods! ¶For it is always so clear, so free of specks, as to yield a superb FLAT finish without any rubbing at all. ¶And if you MUST rub, rub this down with oil or water, and get as fine a job as any rubbing varnish ever gave you—but for less money. ¶This is as durable,as tough, as full-bodied as best rubbing varnishes; quicker drying; never chunky or mealy; and it lasts! ¶Always a clear, glossy, smooth, truly FLAT finish—because it's ALWAYS uniform. ¶And it has fully fifteen per cent. more body than you supposed any flat varnish could have! ¶In fact, you'd better forget all you have been thinking about flat varnishes for your work, and give this a trial for economy's sake. ¶It will prove up on all we say about it.

Full-Bodied and Tough

Long In Oil and Flows Well

Johnson's Flat Varnish

Order Five Gallons at the Drum Price

Send in your order now for 5 gallons and learn what a job it delivers. It won't cloud nor get muddy nor print a bit.

S. C. JOHNSON & SON, Racine, Wis.

UNDERCOATS ENAMELS FILLERS VARNISHES
LACQUERS STAINS POLISHING WAXES

Finishing Toy Pianos

How one concern obtains volume output, while at the same time producing a presentable and reasonably durable finish at the low cost necessary in wood toy manufacturing

By A. J. Daniels

"HOW do the big piano manufacturers do it?" asked the boss of the toy furniture department one morning.

"They rub 'em," I answered.

"And what do they do then?" he continued.

"They rub 'em some more," I answered.

"Why can't we rub 'em?" he asked.

"Because it costs too much," I dutifully answered.

Whereupon, having proved to him that I had made "economy in production" my guiding motto, I proceeded to explain that I believed I knew a method by which we could produce a real mahogany piano finish on our line of toy pianos.

Many Problems Encountered

When we inaugurated the toy piano line at our toy factory we found some stumbling blocks that we had not anticipated—and we had anticipated a great many. Not the least obstacle in our pathway toward profitable production was the difficulty in producing a mahogany finish on white pine, basswood and poplar, some of it of rather doubtful dryness. Some stains produced the right color but raised the grain. Others produced three different colors on the three different woods. As each lot of 1,000 pianos would contain several pieces of each variety of wood, we had to find a stain dense enough to be uniform when dry, yet containing enough color to show up after being varnished.

What Experimenting Revealed

The day before this talk with the big boss I had accidentally discovered that a barrel of stain had been left uncovered in the storehouse. It had been there several days and evaporation had reduced it to the consistency of paint. I tried a few pianos with it to see how much solvent would have to be added, when lo and behold! every piano came through exactly uniform in color. The only objection was that the surface was as rough as if the pianos had been painted with mud.

I sanded them lightly by hand, gave them a coat of imitation shellac that afternoon, and next morning sprayed a coat of varnish on them. Upon looking at them again that evening I knew I had found the answer, as far as finish was concerned. But that little item of hand sanding had me stumped. I knew the big boss would never stand for this added cost. In fact, he was working so close he could not stand for it. But when he put it up to me next morning, I showed him the finished pianos, told him I believed I knew the answer, and got his O. K. to go ahead.

Formerly, we manufactured a small line of radio cabinets and I remembered we had sent out a few samples to be finished. I sought the man who had finished them and from him gleaned that he had buffed the first coat. He had an old buffing wheel stored away and this he readily let me

BREVOKRAK is a complete lacquer process which produces unique effects commonly known as "krakle."

A WIDE RANGE of beautiful color combinations give the appearance of either antique or leatherette finishes which are now in vogue.

APPLICATION BY air spray and very rapid air drying are factors that make possible a hastened movement of your product through the finishing department.

WHY BREVOKRAK?—rather than any other "krakle"? Brevokrak is not only a "krakle" material, but is a "krakle" system. Included are the proper equipment, complete instructions or demonstration in your plant as desired, and initiation of your workmen into the proper application of this Brevokrak system. This Brevokrak system—which is recognized as a standard—guarantees a uniform pattern at the minimum cost.

TO ESTABLISH THE VALUE of this finish for your line we shall gladly finish samples for you at Waukegan or make a complete demonstration at your plant.

(*BREVOLITE* Wood lacquers and lacquer enamels meet the demand of the wood finishing trade for filling qualities and durability—samples on request.)

Waukegan Chemical Company

"Values that endure"

WAUKEGAN :: ILLINOIS

take. I had it installed and then I proceeded to finish pianos the way the big boss insisted they should be finished—and I'm finishing them the same way today.

Uncovered Stain Barrel

We open a barrel of stain ten days before we know we are going to use it. Pianos come to us piece-meal, ready to assemble. The sides, tops, front top and front bottom panels are sanded fairly smooth. We assemble them on nailing machines, except the tops which are nailed on by hand. From the nailing machines they are taken to the paint room where the stain coat is brushed on by hand. Because of its consistency we have been unable to use a spray to advantage.

The stained pianos, after drying, are taken to the buffing wheel where the boy passes each side, once up and once down, over the wheel which revolves toward him. We do not use an abrasive of any kind on the wheel—simply trim it up once in a while to keep it true.

From the wheel the pianos go back to the spraying machines where they are given a coat of imitation shellac. They dry four hours after which they are taken back and given a spray coat of varnish. The tops are handled exactly the same as the piano itself and are nailed on after the working parts of the instrument are in place.

Cost of Buffing

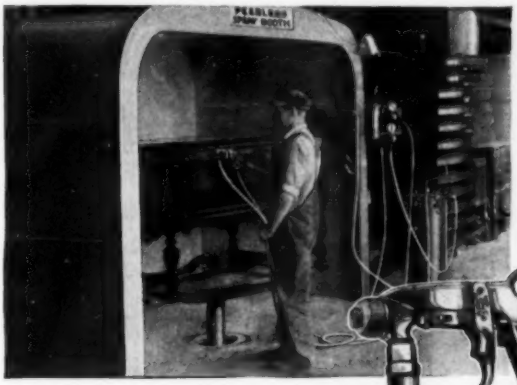
The buffing wheel operation costs 21 cents per hundred pianos, and it adds at least $21.00 in looks to a hundred. It has removed all uncertainty about finishing several kinds of wood, because with it we can use a stain that is so dense it can fairly be called a paint. I have tried buffing the imitation shellac coat, thinking thereby to get an even better finish, but I could see no improvement so I have stuck to the single buffing of the stain coat.

Stacking and Transferring

Now to handle the pianos as I have outlined may cause some master finishers to ask, "what kind of racks does this fellow use?"

Well, I don't use racks. I have found that any method of hanging up the pianos creates an excellent opportunity to accumulate a lot of scratches. If I used a rack big enough to eliminate this possibility, I would have to move most of the other operations out of the shop altogether.

After many experiments and the attendant grief, I hit upon the idea of using sheets of fiber board, 3/8-in. thick and 3-ft. square. Ten sheets form a rack, if you care to call it a rack. Onto the bottom sheet I have two 1/2-in. thick strips nailed to act as runners. The spray operator has a pile of these sheets standing near his machine. His helper takes the piano from the machine, stands it on the board with the sides turned one way. When he has two rows of five pianos on the board, he places another board on top of it and repeats the operation. When he has piled ten tiers of pianos, one on top of the other, he jerks an iron hook into the bottom sheet and skids the whole lot away from the vicinity of the booth. These skids and fiber board sheets remain with the pianos until they are emptied at the packing bench. Then they are stacked up and skidded back to the starting



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Your men can now get right down to fine shading in less time and with the assurance of better results. They can now lay contrasting colors as fine and clean as the art requires.

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Before the perfection of this special shading device it was necessary to regulate the air pressure and let the material flow take care of itself. This made shading difficult and expensive. This has all been changed now.

The Peerless Spray Gun always has had separate air and material control. By the perfection of a special Nozzle that will regulate the spray to a fine fog, controlled to almost hair-line thickness, any desired volume of air may be employed.

The Peerless Spray Gun used as standard equipment in many of the leading factories can now be employed for shading and staining as well as for the application of all base coats and all finishing coats. This new Nozzle Attachment for all Shading purposes is interchangeable with the nozzle used for all other work.

For Color Work

You can lay a bright color just where you want it,—then, shade another color to it; or blend them together if you wish. You can now secure high grade effects, that would have been prohibitive before.

If you have a Peerless Spray Gun, get this attachment. If you have never given the Peerless Spray Gun the make-good opportunity it deserves, do so now. In addition to recognized time, cost and labor-saving advantages you now get better shading at a cost no other spray gun can give you.

Write for details now. It will pay you well.

Peerless Pressure Containers are built in a variety of styles covering every conceivable use. They range in sizes from 15 to 200 gallon capacity, — and supply from one to a battery of spray guns. Agitation by hand or by motor. Write for details.

PEERLESS PNEUMATIC SYSTEMS, Inc.
118 N. Jefferson Street --- --- Chicago

point again. It's simple, cheap and efficient.

Finishing the Keys

Of course pianos, even toy ones, must have keys. Painting the keys was an obstacle for a while, but we solved it before we had found the buffing wheel answer to our other difficulty. The keys come from the mill room in the form of blocks containing 4, 5, 6 or 7 keys, depending upon the size of the piano in which they are to be used. First we give them a coat of white primer.

The keys are piled in a single row on two strip racks with blocks on each end that leave an opening of about 3-in. between the layers of keys. These racks full of keys are placed in the spray booth, one on top of the other. The operator, with a fairly coarse nozzled gun, stands back from his work about 3-ft. and sprays along the edge that faces him. The spray carries back about three-fourths the length of each key, and as this is all that shows in the finished piano, it is sufficient. When the primer dries, the spray operator repeats the operation, using a very good grade of enamel

The enamel keys are taken to a flat-bed printing machine where the black minor notes are printed on with regular black printing ink. This is the really difficult stage of the operation, since if the enamel is the least bit tacky, it will lift under pressure of the press. And for this reason too, we have been forced to use all basswood keys. Formerly we used pine, but the pitch even in the driest pine soon turned the keys yellow. We could prevent this yellowing by applying a priming coat of imitation shellac, but we were never able to prevent a key so treated, from peeling when placed in the printing press.

Finished Keys Sawed

From the printing press the keys go to special gang saws which saw the blocks into individual keys. Here again we often encounter a minor trouble. That is, unless the priming coat is dry before the enamel coat is applied, or if the enamel coat is not thoroughly dry, the keys will feather along the saw kerfs. Little worries like this, however, are what makes the big bosses like mine, pay good money for the man who "knows his groceries." And if a boss finisher doesn't "know his groceries," he doesn't last long in these days of hectic competition.

ALL COLORS AND GRADES
BRONZE POWDERS
for
ALL KINDS OF FINISHES
H. KAHN & CO.
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Make Rosin Ester Gum

Robert Rauh, Inc., have started manufacturing rosin ester gum at the new plant, 480-488 Frelinghuysen Ave., Newark, N. J. On a frontage of 150-ft. by a depth of 247-ft. there are buildings approximating 25,000 sq. ft. with railroad facilities. The capacity of the plant is a carload a day. The company invites inspection of its new plant at any time.

La Vallee Motors To Canada

Mr. C. J. LaVallee, president of The Marietta Paint & Color Co., recently motored to Quebec, and returned from there to Marietta, O., after spending a few days at his son's summer home at Bemus Point, N. Y.

Mr. LaVallee reports having had a very enjoyable time, part of which he spent calling on Canadian manufacturing trade. He is much pleased with the Canadian outlook for his company.

How To Avoid Weak Spots In Your Finishing

Proper distribution of every solvent in lacquer or any other material used for finishing wood and metal products requires more than perfect atomization by the spray gun. Even perfect atomization may lose important solvents by evaporation at the end of the spray. The operator cannot work closer to the surface than the point of atomization in the spray will permit. And the longer the spray, the greater the evaporation. Tests prove conclusively that the

BINKS SPRAY GUN

positively overcomes evaporation, that hidden fault in finishing. Here the atomization takes place at the immediate outlet of the nozzle, permitting the operator to work closely to the surface. Material is deposited with a uniform consistency—every particle of essential solvents is applied intact, there is no evaporation—there are no weak spots to endanger retouching or refinishing. In the application of base materials the Binks Spray Gun will save you hours of tedious, expensive hand-rubbing.

The Binks system of application is worthy of your consideration regardless of the type of equipment you are now using. Many of the leading manufacturers of furniture and allied products, have adopted "Binks as standard" for spraying equipment in their plants. Improvement in finishing and saving of labor materials, makes Binks Spraying Equipment a worthwhile investment. A request for full details implies no obligation. Write today.

BINKS SPRAY EQUIPMENT CO.

"The World's Largest Manufacturers of Industrial Spraying Equipment"

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—for Shading

If you have a shading problem on either wood or metal, the Binks No. 145 Shading Gun can serve you admirably. Because of the atomization principle described above you can work this gun so closely to detail that fine shading is easily accomplished in a thorough practical manner.
Write for details.

Auto Body Cleaning News

The new compound herein mentioned is sprayed on and drops off when subjected to oven drying, bringing grease, rust and dirt with it. Final rubbing or brushing off is followed by alcohol bath

By Walter L. Carver

THE use of a new cleaner for cleaning the metal surfaces of automobile bodies, shows several outstanding features:

1—The cleaner is applied with a spray gun to form a black coat. Any spots which have been missed are apparent immediately.

2—Hazard to employees is entirely eliminated.

3—At the end of the cleaning routine the cleaner is removed entirely and leaves bare, clean metal.

4—Grease, oil, rust, soldering flux and dirt are absorbed or included and removed.

5—Panels coated with transparent varnish, which is placed over a surface cleaned with Pamco, withstand a fadeometer test for periods much longer than those cleaned by the method used at present.

6—While the material is more expensive and the unit cost per body is higher, the saving in labor and the elimination of rubber glove expenditure offset the increase and produce a net saving in cleaning cost which, it is claimed, may run as high as 30 percent.

Ingredients of Cleaner

Ingredients of the new cleaner are sienna, powdered charcoal, methyl-ethyl ketone and phosphoric acid, which form a liquid of about the viscosity of priming paste and which can be sprayed with the usual spray gun equipment and 20 to 30 pounds air pressure with no further dilution. A pressure tank equipped with an agitator is recommended with the use of the spray gun.

In the composition of the cleaner, sienna is an earth which contains iron and manganese oxides. This material weights the liquids to prevent sagging and to give body to the applied material, acting to some extent as the zinc or lead in paints. Powdered charcoal produces the friable and absorbent properties which will be discussed with the routine of cleaning. Methyl-ethyl ketone is an oil solvent. Phosphoric acid is the active rust-removing and cleansing agent.

Production Routine

In the production routine, bodies are brought to the cleaning line from the assembly line. Where a considerable interval exists between these two operations, another cleaner, or rather seal, designated as "Pamco No. 1" is applied. This compound contains more of the solvent than No. 2, which is the subject of this article. Also the charcoal content is decreased in the No. 1 compound. As the bodies leave the assembly line, the No. 1 compound is brushed on and quickly forms a hard black coating which prevents any further rusting action and serves as seal for periods of indefinite length.

In any case, the procedure at the beginning of the assembly line is identical. Pamco No. 2 is sprayed on with the equipment

TRY THIS GUN

Get a Matthews Gun and try it for 10 days. If it doesn't prove to be the best gun you have ever used you may return it. State name of equipment you are now using so we can include adapter.

Leading Paint Manufacturers Adopt Matthews Gun

Several of the largest paint manufacturers after testing all others have adopted Matthews Guns to use in demonstration work of their paints, lacquers and surface coatings. The Matthews Gun is bringing a new day of better work and lower finishing costs. Try out this gun and see why industry everywhere is adopting Matthews Guns.

GET THIS BOOKLET

"Mechanical Equipment for Product Finishing" is an interesting, instructive booklet that you will be glad to read. Send for it.

A Complete Line

There is a Matthews Mechanical Painting Equipment for every type of painting, maintenance painting as well as product finishing. Get complete information. The Matthews Gun handles all types of finishing materials. One gun for all. Can be quickly adjusted from a spot the size of a dime to a 14 inch fan stroke.

W. N. MATTHEWS CORPORATION

3744 Forest Park Blvd., St. Louis, Mo.

MATTHEWS
MECHANICAL PAINTING
EQUIPMENT

discussed previously. As sprayed the material shows no tendency to sag. Following the completion of the spraying operation a period of at least ten minutes should elapse before the body enters a drying oven. This interval is allowed to permit rapid action of the cleaning element in the wet state and the penetration of the minute pores of the metallic surface.

At the end of this ten minute interval, the body should be placed in the usual oven heated to a temperature of 150 to 200 degs. F. and allowed to remain there for at least 10 minutes. The oven equipment used for pyroxylin enamels, consisting of a composition board enclosure heated by steam coils, is satisfactory.

Bubbles and Drops Off

In the presence of this temperature, the acid or cleaning action is stimulated for a short period before the drying action is completed by the balance of the time in the oven. As the cleaner dries thoroughly, the friable characteristics of the charcoal content come into play. Where the grease on the body is thick, the cleaner film raises up in a bubble and finally drops off.

Where the body is fairly clean or contaminated by soldering flux, the cleaner film shrinks and curls up and then drops off. As these portions of the film or coat drop off, they carry with them all of the dirt, rust, grease and flux and leave an absolutely clean surface which is free from powdery residue.

Usually about 85 per cent of the cleaner film drops off in the progress through the oven and out to the next station. If the film sprayed on in the first cleaning operation is too thin, this labor saving action is impeded. The thicker the film, the more readily the flaking or friable action occurs. The film both expands and contracts in the drying process. Where oil and grease are absorbed, their addition expands the drying film. Where solids such as rust, flux, etc., are picked up, the film shrinks.

At present, manual labor is utilized for the removal of the small patches of film which remain after the body leaves the oven. Sandpaper and steel wool are used with great success and experiments with electrically driven fibre brushes have shown great promise. The development of a long rotary brush which will sweep down the sides of the body as it passes along the line is anticipated and has reached the point where marked additional labor savings can be promised.

The removal of these patches is not a tedious operation, as the flaky characteristics of the cleaner film facilitate the cleaning out of corners, etc. In case any of the cleaner remains under the edges of beads, etc., no further damage can occur as the heat of the oven drying neutralizes any residue.

An Alcohol Bath

Following the thorough removal of the cleaner, the body is given an alcohol bath and then wiped dry. In this condition, the body is thoroughly clean with a neutral surface and ready for the finishing operations. Two chief advantages over the usual hot water or steam bath are advanced for the alcohol bath.

First, the boiling water or steam may get into the inside of composite bodies and affect the wood frame. Second, no matter how clean the body may be after

What's wrong with this picture?

IT shows the Worthington FEATHER (Reg. U. S. Pat. Off.) Compressor and the works in which it is made. But it doesn't tell the whole story. It cannot convey to you any conception of the high manufacturing ideals and refinements of design and construction embodied in Worthington Compressors. Similarly in this advertisement we cannot enumerate all the factors that contribute to the unexcelled operating results obtained where air for painting is supplied by a Worthington Compressor. The following are but a few of these factors:

Feather Valves—The lightest, most responsive and longest-lived valve ever devised for compressor use. Gives perfect contact, insuring high volumetric efficiency. No taps. No adjustments.

Special Piston Construction insures pure air free from oil.

Balanced Flywheel.
Counter-balanced Crankshaft (solid forging)
Forced-feed Lubrication.
} Mean high mechanical efficiency, smooth operation, no noise.

Cylinder and head thoroughly cooled—submerged in water-cooled type; effectively finned in cooled type to give large radiating surface.

WORTHINGTON PUMP & MACHINERY CORPORATION
115 BROADWAY, NEW YORK CITY
6732-2 Branch Offices in 24 cities

passing through the wet cleaning method in present use, discoloration always follows the hot water or steam bath. This characteristic yellow bloom is recognized by all finishers and in the last analysis is incipient rust. The use of alcohol is followed by neither of these difficulties.

When the body passes through the Pamco treatment, the metal has the dull silver or satin finish which is associated with etching. That an effect of this nature is present is demonstrated by examination of the streaks formed by soldering acid. This acid attacks the original metal to a greater degree than phosphoric acid, which is the active agent in the cleaner. Consequently when the body leaves the final stage of the cleaning operation, the original streaks show brightly but are surrounded by a satin surface, indicating complete removal and neutralization.

The makers of Pamco assert that the hot water wash which is part of most of the cleaning schemes of today is the greatest drawback to the possibility of a complete nitro-cellulose lacquer finish. Incipient rust is incipient oxide of iron and therefore must be covered with oil primer which has an iron oxide base. The succession of primer and undercoats must cover the metal entirely and then be thoroughly oxidized in themselves to permit the successful application of lacquer.

Editor's Note: The following letter, dated August 5th and signed by Mr. Robert A. Emmett, President of the Rex Products & Mfg. Co., Detroit, Mich., contained also a reprint of Mr. Carver's article in *Automotive Industries*. Since the article contains information of technical news interest, we feel that the portion of it printed above merits publication on that basis. Mr. Emmett's letter follows:

"We have read with interest the item of June written by Mr. Leo J. Smith, Superintendent of Paint and Enamels at Olds Motor Works, describing modern finishing process on new cars, calling attention to the special features and importance in this work.

"Mr. Smith has written a very fine article covering the technical parts of this work with one exception—he does not seem to be familiar with the fact that for the last two years, chemical research has brought out a new product for cleaning metals before painting and priming. I notice he lays special stress on this work and cautions the readers of your valuable magazine of the incidental troubles that they are liable to have, using the old-fashioned wet method of cleaning.

"I thought you might be interested in the developments that have been made in this line, and I am sending you a reprint which appeared in the **Automotive Industries** of January 28th. Since then this material has been further developed and is now in production . . .

"As a subscriber of your valuable magazine, we of course wanted to be sure that you were informed about all modern improvements relating to this work."

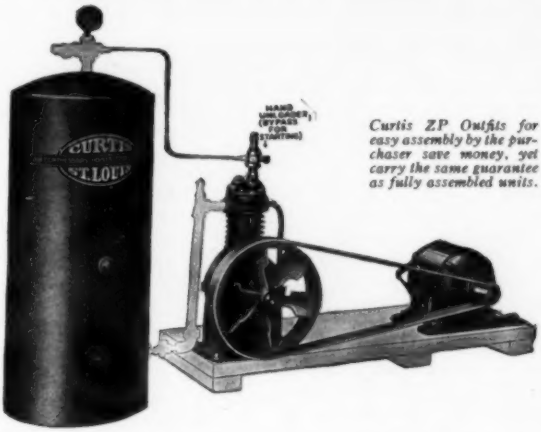
Alcohol and Solvent Makers Consolidate

The American Solvents & Chemical Corporation, New York, has been formed through the consolidation of the following companies: The Everett Distilling Company, Everett, Mass.; the Crescent Industrial Alcohol Company, New Orleans; the Jefferson Distilling & Denaturing Company, Harvey, La.; the Western Industries Company, Agnew, Calif., and the Witbeck Chemical Corporation, Albany, N. Y.

H. I. Peffer is president of the new company; B. R. Tunison and A. P. Jell are vice-presidents, and L. S. Bacharach is secretary-treasurer.

An advertising campaign to acquaint the trade with the advantages of the amalgamation of its products is planned.

Ninety percent of the fires in paint shops can be laid to carelessness.



Curtis ZP Outfits for easy assembly by the purchaser save money, yet carry the same guarantee as fully assembled units.

The Compressor That's Used by the Spray Gun Manufacturers

The principal manufacturers of pneumatic spray painting equipment, have approved and are using Curtis Compressors as standard. In spraying lacquer you must be sure of a clean, dry air supply. Your compressor must not force oil into the air line. Curtis compressors deliver only enough oil to the cylinders to assure proper lubrication—no excess to enter the air line. No matter what make or type of paint gun you use, insist upon a Curtis Compressor to furnish clean, dry air in order to produce successful lacquer or paint finish. Mail the coupon below for full free information. No obligation, of course.

CURTIS PNEUMATIC MACHINERY CO., St. Louis, Mo.

Send This Coupon

CURTIS PNEUMATIC MACHINERY COMPANY,
1977 Kienlen Avenue, St. Louis, Mo.
Branch: 5518D Hudson Terminal, New York

Please send me complete FREE information about Curtis Air Compressors for paint and lacquer spraying outfits.

Name.....

Address.....

City..... *State*.....

Colors for Oil Stains

Finishing foremen will find this information about coloring materials used in oil stains, of great value now and in the future

By George A. Prochazka, Jr.

OIL STAINS have a field of usefulness. The limits of utility are not, however, always clearly defined. To give the finisher in a brief, non-technical manner the story of the coloring materials used in such stains is certain to be more instructive in selecting the proper place to use this method than a tedious recital of advantages and disadvantages.

To produce oil stains two types of coloring materials are used, namely, oil soluble dyes and insoluble pigments. The first class, giving clear transparent shades, is the most desirable. The second class is used on a price consideration, or to fill in the gaps created by a lack of oil dyes of the right shade and quality. The remarks in this article will be confined to the first class, for when using the pigments a finisher treads no unfamiliar ground.

Oil Soluble Dyes

There are two kinds of oil soluble dyes. One type is suitable for wood finishing, the other furnishes but few colors that should be so used. The desirable class is made by combining two intermediates (dye-making materials). The less desirable class is made by combining an aniline color base with stearine, red oil, or rosin. The latter are called stearates, oleates, resinates, according to the used combining acid. They are made and sold to supply shades which cannot be otherwise provided commercially. Beyond the greasy nature of the stearates, the liquid form of the oleates, and the extreme fluffiness of the resinates, there is no easy method by which the layman can detect the nature of the color at hand.

The succeeding part of this article will take up the various important oil soluble dyes, following the convenient shade scheme of classification.

Blacks. All oil soluble black aniline dyes are of the stearate type. According to the notions of individual manufacturers varying combinations of nigrosine (a black color base), induline (a dark blue color base), chrysoidine (an orange color base), and stearic acid are used to make the dye. The cheapest black is obtained by a simple union of nigrosine and stearine. The omission of the orange base in the formula changes the cast of the dye from a jet to a blue black.

To get away from the greasy effect of stearine, resinates are made. They are higher priced and are not extensively used. The oil blacks of commerce are in the form of powder or small chips. Freshly made dye is black in physical appearance, but with time it gets a gray cast. Oil blue blacks, that is, those made without the orange base, are the most permanent of these stearic acid aniline color combinations. The jet shades deteriorate much faster. The oil blacks are ser-

MOST COMPLETE EQUIPMENT FOR SPRAY FINISHING

Five More of the 101 Reasons for Paasche Superiority.

(air brush) Two-finger trigger eliminates fatigue and insures better work and less waste of material.

(pressure container) Quick change, removable cover can be detached and attached in a few seconds. No screws to stick, no packings to leak.

(air conditioning unit) Simple fool-proof design eliminates material which can be saturated and require replacement.

(spray cabinet) Fully enclosed motor insures long life and absence of fire hazard from sparking.

(rubbing machine) Produces a reciprocal motion just like hand rubbing.

Economy in spray finishing depends on many factors

IT is no longer a question of spray or hand finishing. Economy as well as quality demands the use of the spray and the pneumatic rubbing machine in a modern furniture factory. The question now is what type of equipment will produce the best results and the latest effects, such as two-toning, at the least cost.

Many factors enter into the solution of this question because a spray finishing outfit is composed of several units. Buying a spray gun of one kind, a pressure container of another, an air conditioning unit of another, etc., is bound to produce poor results, just as surely as buying spare parts of various cars and putting them together would produce a poor automobile.

You have to depend on *some* manufacturer to perfect the details of each piece of equipment and fit them together so as to produce the most satisfactory performance in your finishing department. Who can do this more surely than the Paasche Airbrush Company, which ever since its inception has devoted the energy of its entire organization to the development and production of fine spraying equipment for the sole purpose of applying paint and similar finishing materials.

You can buy the Paasche outfit with assurance that all the features affecting economy have been considered and every effort made to produce the best for your requirements.

May we send you a statement of the reasons for Paasche Superiority.

Paasche Airbrush Co.

1921 DIVERSEY PARKWAY, CHICAGO

New York
54 Dey Street

Cleveland, O.
418 Perry Payne Bldg.

11-237 General Motors Bldg.
Detroit, Michigan

THE LARGEST EXCLUSIVE MANUFACTURERS OF FINISHING EQUIPMENT

viceable colors, and although there is room for better dyes none are known.

Blues. The oil blues are also all of the stearate type. The induline combination gives a dark blue of fair permanence. The resulting material is so waxy that it is hard to chip or powder. This drawback, coupled with the small existing demand, does not make the color attractive to manufacturers. The bright shades made from victoria blue base give extremely fugitive colors which are almost entirely used in other lines. In general there are no real satisfactory oil soluble blue aniline colors.

Greens. The oil greens are made by the addition of yellow to the oil blues. They are extremely sensitive products as they show marked departures from standard shade, even when stored in a closed container for a short time. Green stains are, to best advantage, made from pigments.

Violets. Oil violet is usually a stearate of methyl violet color base. The dye is extremely sensitive and therefore, finds little application. The lavenders, shade variations of the violet and obtained by adding a little red, are no better in quality than the parent color.

Browns. Oil browns, as sold in the trade, are invariably mixtures of other colors. Some few brown color base stearic acid combinations are made, but the quantity is negligible. A number of different oil browns are made from dye-making materials and sold as self colors in a small way. Owing to a lack of browns of suitable shade and properties to be used by themselves the bulk of such staining must be done by the use of mixtures. Where blacks, yellows, and other colors of widely varying hue are used, the fact that the dye is a mixture can usually be determined by sight.

Reds. The important oil red field is largely monopolized by two dyes made from intermediates. As both of these have a wide range of properties they are used for many purposes. One of these, an oil red, Schultz Index No. 232, is found extensively, both as a self color and as a component of mixtures. It is also quite popularly known as Sudan IV. It is this dye which is so often cursed for its ability to bleed through covering coats of light colored pigments.

The other dye, an oil scarlet, Schultz Index No. 76, is also extensively used in mixtures and as a self color. This color is also quite well known as Sudan II. Many of the red shades are obtained by blending various dyes. Nearly all are fairly permanent colors. The very bright reds and pinks (stearates of rhodamine), are used almost entirely for coloring waxes.

Orange. The only important oil orange, commonly called Sudan I., is made from intermediates. Its somewhat volatile nature makes many people seek to obtain a more serviceable color by blending other dyes.

Yellows. There are two important oil yellows. Amido-azo-toluol (oil yellow T or spirit yellow R, as it is variously called) is made from intermediates. The other one, yellow D, or butter yellow, of somewhat greener shade — at times cheaper to make—belongs to the same class. Unfortunately, both of these colors turn brown when applied to pine or come in contact with acid. In

The Compressor for perfect spray painting

THERE'S one point you've decided on—that is to get the best spray gun manufactured. You want your paint jobs to build up your reputation.

But don't overlook this fact. No spray gun is better than the Compressor that runs it. That's why you should insist on a Model "P" Quincy. You'll get steady pressure, clean, dry air free from oil, and quiet vibrationless service for a lifetime. Quincy Compressors are built to make any kind of spray gun 100% efficient. Many manufacturers of spray guns sell Quincys as original equipment. See that a Quincy runs your paint spray outfit.

Quincy P

In five sizes. Can be furnished either with gas engine or motor drive.

In portable or stationary style

Quincy Compressor Co.
305 Main St.
Quincy, Ill.

Formerly Wall Pump and Compressor Co.

Clip and mail this ad for complete information

QUINCY COMPRESSOR CO.

Quincy **Illinois**

K 306

spite of this drawback, their other qualities being generally good, they furnish the vast bulk of the oil yellow used in commerce.

Sudan G is a very orange yellow of good qualities, but rather high priced. Azo-xybenzol, made from phenol and aniline, is a fairly acid proof yellow, but the dye has little coloring power. Spirit soluble quinoline yellow, Schultz No. 612, will dissolve in varnish to a limited extent and give a shade which will not turn brown on pine. The color is not particularly soluble in spirits. It is also used to make the bright yellow stearates for coloring waxes.

Benzol as a Solvent

Benzol, the coal tar derivative, is the best solvent for oil soluble dyes as a class. Individual colors are more soluble in other mediums, but a poorer average solubility is attained. As heat is required to effect solution, it is readily seen that special equipment must be employed to make oil stains.

A pure benzol solution of oil dyes will not stain for the color crystallizes out with the evaporation of the solvent. To offset this property about 20 percent of varnish must be added to the benzol. A protecting coat of shellac reduces the absorbing effect of varnish put immediately over an oil stain.

After finishing coats have been applied, oil stains are reasonably permanent for average work. Oil soluble dyes are not suitable for such things as shingle stains, where the color is exposed to the bright out-of-doors sunlight, and pigments must be used for coloring.

Questions and Answers

This service department is conducted to meet the readers' need for prompt information on specific problems, and to give others an opportunity to review the questions and to offer comments, suggestions or answers

Round Handle Finishing

We are manufacturing broom handles, mop handles, brush rods, etc., and we think that we are going to have to paint, dip or enamel a part of our product to meet the demands of the trade. We are interested in suggestions and the latest methods and equipment for this kind of work.—A. W. M.

Finishing Toys

We are interested in the finishing of children's toys, wheel goods, etc., some of which must stand considerable outside exposure, and want to learn of dipping finishes, made up in blue, red and yellow that have good gloss and color, but which will not crack or peel off when left exposed to weather, also must stand considerable scuffing. We cover maple, birch and pine lumber all of which is thoroughly sanded, etc., and needs little filling and I might add that on our goods finished in the natural with two coats waterproof varnish, we experience little difficulty as mentioned above. Most of our trouble occurs in the col-

MECCO

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AND

LACQUER ENAMELS

BEST OBTAINABLE

FOR ANY ARTICLE REQUIRING A DURABLE FINISH

Metal, Wood or Composition

AUTOMOTIVE and OTHER TRADES

We solicit your inquiries

THE MINER EDGAR CO.

110 WILLIAM ST.

NEW YORK -:- NEW YORK

ored goods, which seem to be gaining more favor than the natural finished articles for children.

Would you recommend the use of first class paint in preference to oil enamels to overcome the difficulties outlined herewith?—A. B. C. Co.

Reclaiming Shellac

The reclaiming of shellac in spray booths, as requested by C.W.P.Co. in August issue, is successfully done by making a frame or frames and then covering them with cheese cloth. Put these frames on the insides of booths and in front of exhaust fans, from the floor up.

When they become loaded, take them out, lay them on wrapping paper and brush the dry shellac off the cheese cloth on to the paper. Put the dry shellac in a quantity of alcohol and the next day strain it and use it again. In this way there is very little of the shellac wasted. I have used this method for years.—Albert Welsh.

Varnish Cracks Vanish

While surface cracks are the desirable objective in some of the new finishes (crackle, for example), they are still objectionable in the regular smoothly polished lacquer and varnish surfaces. In many production factories and refinishing shops it is still customary to renew a cracked varnish surface by scraping off all traces of the finish and putting on a complete new finish. Naturally this calls for a considerable amount of disagreeable and painstaking labor in addition to the time and expense involved.

"Unquestionable Quality"

Stains
Fillers
Shellacs
Lacquers

"4 4 4"

Lacquer shading stains embody the perfected elements for the delicate high lighting so much in vogue on finer furniture at the present time.

HARRY J. LINDEMAN & CO.
1832 N. Laramie Ave.
CHICAGO, ILLINOIS

Recently Mr. Freyer, foreman finisher of the Cabinet Makers Union, a furniture factory in Indianapolis, Ind., tried out a material which when brushed on a cracked or marred varnish surface, softens the surface finish and causes it to flow out evenly and knit firmly together, thereby closing up the objectionable cracks. He first tried it out on an old round dining table top which had been given several added "refinish" coats during its long period of service.

These repeated coats of varnish put on from time to time (making a grand total coverage of possibly 10 or 12 coats) had eventually produced a heavy built-up finish which, after much exposure and elapsed time, had cracked all over. The cracks became deep and wide and their frankly aged effect gave the top the appearance of having been completely ruined insofar as the finish was concerned. Here, indeed, was about the worst example of cracked varnish one could possibly obtain.

Accordingly, Mr. Freyer started in with applications of the new material he had been invited to try out. The results from the start were so encouraging that he decided to make a real job of it and he brushed on five appli-

WHY

Du-Pros Shellac
Goes Farther
And Makes Going Easier

Goes farther, because the double processing gets more out of the lac to go with.

A 4-pound cut of Du-Pros is considered by many shellac experts to be equal to a 4½ pound of any other make.

It not only goes farther but because of a finer cutting of the lac, it brushes easier, and when diluted a third, does not gum or pile up, like others.

But why take our say so. Send for free tryout can. See for yourself.

JAMES B. DAY & CO
224 WEST SUPERIOR ST.
CHICAGO
Manufacturers of
WOOD FINISHING MATERIALS

PE-CO-LAC

The Dependable LACQUER for factory finishing jobs

PE-CO-LAC, to many manufacturers whose work is not done till their products receive the final surface finish, is a necessity.

The surface finish is a part of the product,—therefore, lacquer must be selected on the same basis that governs the purchase of other materials that go to make up the finished product.

Detailed information on request

PECORA PAINT COMPANY

4th St. & Sedgley Avenue
Philadelphia, Pa.

Established 1862 by Smith Bowen

Incorporated 1911

No. 75 FURNITURE LACQUER

No. 75 FURNITURE LACQUER is in a class by itself and it is made ready for the spray. We suggest a coat of our LASCOROID over the stain and filler followed by two coats of No. 75 Lacquer. The finish can be rubbed and polished to the finest surface. This Lacquer has no equal as an all-around furniture and wood Lacquer.

The LASCO SHELLAC & LACQUER CO.
Baltimore Maryland.

cations of the clear "knitting" or "restorative" material, allowing a period of drying after each one. After the fifth application the last trace of any cracks or crazing had vanished and the top presented a smooth lustrous finish that glistened with newness, fullness and depth. With a finish rebuilt in this manner the job can be left "as is" or covered with a coat of varnish.

On a more recent occasion Mr. Freyer tells of a spray operator having by mistake put on a coat of lacquer over a coat of varnish. The strong action of the lacquer on the varnish soon produced a rough, blistered surface. One application of the restorative material was brushed on to smooth out the rough surface. After a short period of drying the surface was lightly sanded with fine sandpaper and a finish coat of lacquer sprayed on. This final application of lacquer leveled out over the restored surface and dried satisfactorily, leaving a smooth, hard, lustrous surface.

Other finishers who have used the material declare that once a finish is fixed up by this treatment, it "stays put." An application of it is recommended before an old varnish surface is refinished with varnish in the regular way.—T. J. Newby.

Painting Traffic Signal Stands

Anyone who has painted fence posts or any kind of poles will agree that it is a time consuming job, considering the little amount of paint actually put on. The range of muscular action involved is large—one minute standing on tiptoe, the next working in an easy, natural attitude, and finally sitting on the ground

MIXED *with* BRAINS

A famous artist was once asked with what he mixed his colors to get such beautiful effects. They were mixed with Brains, he said.

In that answer lies the secret of the difference between ALAKA Lacquers and Enamels and other finishes. The manufacturing process of all Lacquers is more or less the same. What makes ALAKA different from others is not ingredients but brains applied to mixing the right kind, quality and quantity of ingredients, applied with a dash of finishing experience and seasoned with technical fool-proof knowledge—that's ALAKA.

This simple formula makes ALAKA durable and lasting where other finishes are not. This gives ALAKA its glass-hard, scratch and chip proof surface. This too accounts for its beauty, its rubbing quality, its superiority in aiding the sale and keeping your products sold.

We would like to mix our brains with some of your knotty finishing problems. We request an opportunity to demonstrate ALAKA, in your own finishing room under typical conditions. It costs nothing and may profit you much. Why not let us show you.

Ask for "Finishing Facts."

LACQUER & CHEMICAL CORPORATION

214-224 Fortieth St. Brooklyn, N. Y.

KESSCO PRODUCTS

SOLVENTS are an important factor in your overhead and one worthy of close scrutiny.

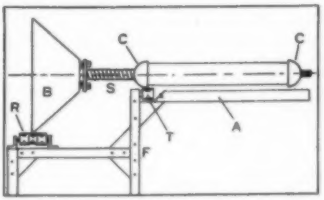
OUR CO-OPERATION for best results at minimum cost is yours for the asking.

Ethyl Acetate
Isopropyl Acetate
Butyl Acetate
Amyl Acetate
Butyl Alcohol
Amyl Alcohol
Refined Fusel Oil
Butyl Propionate
Amyl Propionate
Ethyl Lactate
Diethyl Phthalate
Diamyl Phthalate
Dibutyl Phthalate
Dibutyl Tartrate
Triacetine
Special Solvents

KESSLER CHEMICAL COMPANY
ORANGE, N. J.

with the pole between the legs while painting clear to the bottom.

It is that way with painting traffic signal stands. Even on the 4-ft. kind a man can neither stand nor sit and cover the entire length from one position, disregarding entirely the fact that you must either walk completely around the signal at these different heights or turn the unit while painting it. Higher signals, of course, are still more difficult to finish. Where large quantities of these are made, real production methods can be introduced, but where small lots are put through and specials are a part of the daily program—here the cost of painting may easily run as high as that of all the other items of manufacture.



The traffic stand, mounted horizontally, BSCC turns on rollers R and T.

The accompanying drawing shows a painting stand that is used in the Pennsylvania factory that makes the Watts signals and markers. The Watts patents cover a variety of signals that fit in with special conditions—combination day-and-night signals, nonbreakable markers for street intersections, and traffic violator tell-tales. Production does not run high on these and so any of the dip or spray methods of painting are not considered. Much of the painting is special, too, for

obtaining high visibility and to suit the decorative ideas of the municipalities being served.

Under such circumstances, handpainting is the method followed, and the painting stand used is one of the interesting fixtures that have been designed to keep costs within reasonable bounds.

The painting stand shown herewith has cut the time on some of the signals from 35 to 5 minutes, besides enabling the workman to do a better job. He also works with very little fatigue, since the signals are placed in horizontal position and revolve on rollers.

To explain the stand's features better, consider first the signal lying in it, this being one of the non-breakable type. A heavy conical base *B* is surmounted by an upright part consisting of a special spring *S* and a tubular section included between the metal caps *C* and *C*. This tubular part receives most attention from the standpoint of finish, the body coat often being blocked off or striped according to specified designs.

A framework *F*, of structural steel supports the axis of the signal some 30-in. from the floor. The painter sits in front of this stand where, with plenty of leg room, he can reach every part of it comfortably. The signal rests on a pair of rollers at *R* and another pair at *T*; it is on these rollers that it is turned for painting all around. The workman paints with his right hand and turns the work with his left.

An arm *A* extends out toward the free end in such a position that a striping brush can be steadied while the signal is twirled. Notches on this steady

SUPERIOR WOOD STAIN POWDERS

The most complete line

Samples and information on request

W. D. Lockwood & Co.

314 W. 14th St., New York

The Originators Continue to Excel

LACQUERS for Wood

Pioneers in wood lacquers that give a finish that lasts. Made to satisfy users for sixty-nine years. Write us your requirements.

Chas. Cooper & Co.

90 Worth St., New York

Works—Newark, N. J. Since 1857

Satinite Colors

In liquid form, ready for the spray or brush, in over 40 popular shades, offer you the most satisfactory line for the production of colored furniture combinations so much in demand.

Beautiful, Fast, Durable and Safe with 15 years of real service to recommend them.

Write for information, or better still, let our service man show you what these materials will do.

STICKNEY COLOR CO.

Manufacturers

Satin Finish Products, Coach Colors, Varnishes and Lacquers

INDIANAPOLIS, IND.

PYLOKROMES

FAST TO LIGHT STAINS

If your work calls for stains *fast to light*—

If you stain wood, reed, rattan, veneers, compositions—

If you use as solvents Water, Alcohol, Shellac, Nitro-cellulose Lacquer, Oil, Benzol, Benzine, Gasoline, Turpentine, Wax—

Send for Testing Samples

PYLOKROME

ANILINE DYE CRYSTALS

PURE :: FAST :: UNIFORM

Pylam Products Company

Mfg. Color Chemists

799 Greenwich Street New York

"AROLAC for EXCELLENCE"

AROLAC

Wood—Metal Finishes.
Can be dipped or sprayed.
Air dried and waterproof.

Used on Automobiles, Wood Furniture, Metal Novelties, and Toys.

Specialists in Automobile Finishes. Colors matched in gloss or flat finishes.

Write for working sample

CELLULOID LACQUER ENAMELS

Manufactured by
ARIZONA LACQUER MFG. CO.
7-11 Sixteenth Street
BROOKLYN, N. Y.

Chicago, Ill., Office and Warehouse
701 So. Western Ave.

Philadelphia Office and Warehouse
8750 Eastwick Ave.

rest make it possible to duplicate stripes and blocks without laying them out.

Because this painting stand conserves energy and eliminates non-productive movements, it has accomplished the feat of saving four-fifths of a skilled man's time. This saving percentage is constant, whether ten or twenty are run through in a day's orders. The stand is inexpensive and has the further advantage of being portable.—D. A. Hampson.

Cultivating Loyalty

Finishing rooms I have visited, where it just seemed as though every workman—sprayers, rubbers, stainers, fillers and the boss—all were happy.

On the other hand I have visited some shops where it seemed as though the boss continually had his eyes on the workmen and they, in turn, watched the boss. When he was near the men worked hard, and when he was not in sight they slowed down.

The foreman in charge of the department can do much to cultivate a spirit of co-operation among the workmen. Just how this can be done constitutes a wide subject, for there are many ways to accomplish this. However, there are some men who do not wish to be loyal to the foreman. They have no sense of self-respect and they might as well be excluded from the start.

To illustrate what I desire to bring out I feel prompted to tell a little personal history which actually took place some time ago.

I was employed by a large firm and the sales manager who coached me on some of the selling points, etc., gave the following advice when I was ready to

go out on the road and start to work alone.

"We believe in you. We have confidence and trust in you. It will be impossible for us to watch you, as you will be miles away from this office and even if we could watch you we would not do so, for we don't want any salesman in our employ that we have to watch. It's up to you. You can now prove to us that we have not misplaced our confidence."

I can never forget that advice. Somehow it just called upon my manhood to do what was right.

Foremen finishers ought to talk like that to men when they hire them. There is really no difference between a salesman on the road or a rubber in the finishing room, as far as loyalty is concerned.

Foremen might do well to tell the sprayer or the rubber or the filler, when he employs him, that he believes in him and has confidence in his ability. Some men—and I don't wonder at it—get the idea that the foreman is after them all of the time and that he is simply a driver.

Not only would the foreman get the men to be more faithful to their trust, but he would elevate himself in the eyes of the workmen, and that ought to be worth the idea alone.—J. C. Hertstein, Jr.

Primers for Stone and Brick

Usually, stone does not need special treatment, and any good oil paint serves as a primer, although some conditions of surface or type of finish sometimes require material made specifically for the purpose.

Brick usually contains a large amount of moisture and it is the action of this water on the potash and soda in the clay which causes

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efflorescence or white "saltpetre" spots, so objectionable in appearance. To remove this white stain apply a wash consisting of one part of sulphuric acid diluted with three parts of water.

Now always remember this: in making mixtures of sulphuric acid and water, the acid must be poured into the water; otherwise, reversing the operation results in an explosion. If the brickwork is to be painted the proper priming or sealing coat is an application of drying oil prepared as follows:

3 parts boiled linseed oil.
1 part kerosene oil.

Mix the two liquids, and if the brick are red, stir in a pound of dry Venetian red to each gallon of prepared oil. Cream colored brick do not need a color pigment in the primer. This oil mixture will dry in about four days the same as raw linseed oil, and then the brick are ready to paint in any desired manner.—R. Persch.

The width of the spray can be gauged by adjusting the nozzle of the gun, and the flow by adjusting the needle.

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